



PHD

## Investigation into early implementation of non medical prescribing in the UK

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# Investigation into early implementation of non medical prescribing in the UK.

Rachel Jane Hobson

A thesis submitted for the degree of Doctor of Philosophy

University of Bath

Department of Pharmacy and Pharmacology

May 2008

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Rachel Jane Hobson

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## ABSTRACT

**Introduction:** Prescribing by non medical personnel (NMP) has been introduced in the UK. The objectives of this study were to (a) describe pharmacist discharge prescription transcription service (PDPTS) provided in UK hospitals prior to NMP b) investigate the implementation of supplementary prescribing (SP) by pharmacists in England c) explore patient opinions on development of pharmacists and nurses as independent prescribers (IP).

**Methods:** Two postal questionnaires were undertaken, one of hospital clinical pharmacy managers (Q1) and one of PCTPs and CPs (Q2). Depth interviews with patients were also used. Ethics approval was obtained.

**Key Findings:** For Q1 the response rate was 66% (135/206). PDPTS was offered by 49/135 (36%) of hospitals and was the most common prescribing activity undertaken. The majority of pharmacists wrote <5 prescriptions per day (n=25, 52%) and required counter-signature from a medical practitioner (65%, n=31, 1=missing data).

The response rate for Q2 was 68%. Both sectors intended to implement pharmacist SP by the end of 2005 (57%, n=55 and 56%, n=100 respectively).

Within secondary care, the clinical areas provided were based upon established roles. Within primary care, the clinical areas were influenced by the General Medical Services (GMS) Quality and Outcomes Framework.

Patient concerns included doubting ability to deal with serious conditions and diagnostic skills. Nurse prescribing was more acceptable because nurses were considered to be trustworthy. Community pharmacists were perceived as being “non-NHS” and had a negative image. Experience of pharmacist SP enforced views that pharmacists would be capable as IPs.

**Conclusion:** The majority of the PDPTS schemes were not extensive and principles of clinical governance were not met. Consensus upon authorisation requirements of PDPTS and the legal position was unclear.

Regarding implementation of NMP, community pharmacists face more obstacles, such as obtaining funding for such services and public acceptance.

## GLOSSARY OF ABBREVIATIONS

A&E	Accident and Emergency
AF	Atrial Fibrillation
AJHSP	American Journal of Health Systems Pharmacy
BMA	British Medical Association
BMJ	British Medical Journal
BNF	British National Formulary
CD	Controlled Drug
CHD	Coronary Heart Disease
CHI	Committee of Healthcare Improvements
CINAHL	Cumulative Index to Nursing and Allied Health Literature
CMHP	College of Mental Health Pharmacists
CMP	Clinical Management Plan
COPD	Chronic Obstructive Pulmonary Disease
CP	Community Pharmacists
CPD	Continuing Professional Development
CSM	Committee of Safety of Medicines
DGH	District General Hospital
DMP	Designated Medical Practitioner
DoH	Department of Health
DTB	Drugs and Therapeutics Bulletin
EFNP	Extended Formulary Nurse Practitioner
ENT	Ear, Nose and Throat
GHP	Guild of Healthcare Pharmacists
GI	Gastro-Intestinal
GMC	General Medical Committee
GMS	General Medical Services
GP	General Practitioner
GSL	General Sales List
HbA1c	Glycosylated Haemoglobin
HCP	Health Care Professional
HIV	Human Immunodeficiency Virus
HRT	Hormonal Replacement Therapy

IJPP	International Journal of Pharmacy Practice
INR	International Normalized Ratio
IP	Independent Prescribing
IPA	Interpretive Phenomological Analysis
ISMN	Isosorbide Mononitrate
IT	Information Technology
KMO	Kaiser-Meyer-Olkin
KSF	Knowledge and Skills Framework
LDL	Low Density Lipoprotein
LDL-C	Low Density Lipoprotein-Cholesterol
MAU	Medical Admissions Unit
MCA	Medicines Control Agency
MREC	Multi-center Research and Ethics Committee
MUR	Medication Usage Review
NHS	National Health Service
NI	Northern Ireland
NICE	National Institute of Clinical Excellence
NIDDM	Non-Insulin Dependent Diabetes Mellitus
NMC	Nursing and Midwifery Council
NPC	National Prescribing Center
NPF	Nurse Prescribers Formulary
NPSA	National Patient Safety Agency
NSF	National Service Framework
P	Pharmacy-only medicines
PACT	Prescription Analysis and Cost Data
PCA	Principal Components Analysis
PCT	Primary Care Trust
PCTP	Primary Care Trust Pharmacist
PDPTS	Pharmacist Discharge Prescription Transcription Service
PGD	Patient Group Directions
PIANA	Pharmacy in a New Age
PJ	Pharmaceutical Journal
PODs	Patients Own Drugs

POM	Prescription Only Medicine
PPI	Proton Pump Inhibitor
QUOF	Quality Outcomes Framework
RCT	Randomised Controlled Trial
RPSGB	Royal Pharmaceutical Society
SCBU	Special Care Baby Unit
SD	Standard Deviation
SHO	Senior House Officer
SP	Supplementary Prescribing
SPSS	Statistical Package for the Social Sciences
TC	Total Cholesterol
TPN	Total Parenteral Nutrition
TTA/TTO	To Take Away/To Take Out (discharge medication)
UK	United Kingdom
UKPPG	United Kingdom Psychiatric Pharmacists Group
USA	United States of America
VTE	Venous Thrombo-Embolic
WTE	Whole Time Equivalents

# CHAPTER 1: INTRODUCTION

## 1.1 THE THESIS

The introduction chapter (Chapter 1) will provide background information upon the political climate, key legislative and governmental reports that have led towards the development of non-medical prescribing, and the impact of clinical governance and risk upon the activity of prescribing.

A timeline of when this research was developed and conducted compared to when important reports and changes in legislation were made is also provided.

The next chapter of the thesis, the literature review (Chapter 2) will examine the existing body of knowledge regarding nurses in the prescribing role and what has been established from the studies that have been undertaken. The body of literature that is available upon pharmacists in prescribing roles is then also examined and the outcomes that have been established from these studies.

After considering the existing literature, the hypotheses and detailed objectives are presented.

In Chapter 3, methods, a detailed research plan is presented including a brief discussion of the methodology. The results are presented in detail in Chapter 4. Chapter 5, the discussion, is divided into two sections. In the first section the methodology is critically reviewed and discussed in detail. In the second section the results are discussed in light of previous research findings. Chapter 6 presents the conclusions from the research and the final chapter (Chapter 7) presents recommendations for both development of the prescribing role of pharmacists and future research.

## **1.2 BACKGROUND: DEVELOPMENT OF EXTENDED PRESCRIBING ROLES FOR NON-MEDICAL HEALTHCARE PROFESSIONALS; WHY HAS NON-MEDICAL PRESCRIBING DEVELOPED?**

### **1.2.1 The political climate**

In 1995, the Royal Pharmaceutical Society of Great Britain (RPSGB) initiated the Pharmacy in a New Age Project (PIANA)- a strategic planning programme. Via debate with the profession, in 1997, a publication called “Building the future”<sup>1</sup> identified key areas considered critical to the future of pharmacy. These were: the management of prescribed medicines; the management of long-term conditions; the management of common ailments; the promotion and support of healthy lifestyles and advice and support for other healthcare professionals. The project aimed at realizing the potential of pharmacy on the grounds that pharmacists were a massively underused resource in healthcare. This project was undertaken as a response to the suggestion that the pharmacy profession was becoming deskilled. The RPSGB led this campaign for reprofessionalisation and suitable professional recognition by seeking to redefine community pharmacies’ role in the primary healthcare team.<sup>2</sup>

Alongside this desire from within the profession to improve the status of pharmacy, the Government has also been driven to extend roles of non-medical healthcare professionals as a means of increasing access to healthcare for patients.

The National Health Service (NHS) Plan was launched in July 2000.<sup>3</sup> The NHS Plan outlines the vision of a health service designed around the patient: a new delivery system for the NHS as well as changes between health and social services, changes for NHS doctors, for nurses, midwives, therapists and other NHS staff, for patients and in the relationship between the NHS and the private sector.

Based around 10 core principles, the plan aimed to bring about a high quality, patient-centered health service. It outlines the government's plans for giving patients better access to pharmacy services and for helping them to use medicines more effectively. Of critical interest to this research thesis, the paper also stated that the services would be restructured to meet the needs of patients and to integrate more closely with other

local services. Also, the plan stated that prescribing rights were to be extended to include suitably qualified pharmacists amongst other healthcare professionals.

Prescribing was the one role that made doctors “unique” from other health care professionals. Further examination of what led the Government to consider extending prescribing rights to other healthcare professionals should therefore be considered.

The development of non-medical prescribing has been closely linked to the shortage of doctors that was apparent in the 1990's.<sup>4</sup> There were specific concerns about the numbers of general practitioners. In a warning to Liberal Democrat delegates in 1996, the British Medical Association (BMA) informed delegates that the number of general practitioners under the age of 35 had fallen from 6491 in 1988 to 5830 in 1994, and the number of general practice registrars had fallen by 15% in the same period to 1840. There had also been a reduction in the number of doctors working beyond the age of 60 and they warned that in the next decade over a third of the doctors retiring originate from overseas, which would make recruitment even more difficult in the areas where these doctors had been maintaining the NHS.<sup>5</sup>

Although the Government had been insistent that prescribing policy had not been driven by medical shortages, but rather as a positive way of enhancing patient care, it has been reported that it is unlikely that they were not influenced by this.<sup>4</sup>

Indeed published research of attitudes of healthcare professionals also suggests some cynicism about why non-medical prescribing was being introduced with participants stating that they wondered whether it was a means of addressing the shortage of doctors and reducing NHS costs and it was also seen as a way of resolving resource problems.<sup>6</sup>

Dr June Crown, who wrote the Review of Prescribing, Supply and Administration of Medicines, final report in 1999 stipulated that her remit when compiling this report was to make better and more appropriate use of nurses and pharmacists, and that non-medical prescribing was NOT developed due to a shortage of doctors (*Dr. June Crown, lecture at University of Bath, 2<sup>nd</sup> May 2007 “Pharmacist prescribing- What difference will it make to you and your patients?”*)

By mid-1992 anecdotal reports of nurses taking over important parts of junior hospital doctors' clinical work were already beginning to appear in the health service press.<sup>7</sup>

The shortage of junior doctors was fuelled by the requirements of the “new deal” to reduce junior doctor’s hours,<sup>8</sup> so that by 31<sup>st</sup> December 1996, no junior doctor would work more than 56 hours per week.

This limitation on working hours of junior doctors will have inevitably lead towards the boundaries between the clinical work of doctors and the other large group of health professionals, namely nurses, to become redrawn. Alongside this political climate in the early 1990’s, momentum was increasing within the nursing profession for the extension of their clinical role, especially in the field of prescribing (*as discussed in the history of nurse prescribing section 1.6 p31*). Although district nurses and health visitors achieved limited prescribing rights from a Nurse Prescriber’s Formulary (NPF) in 1998,<sup>9</sup> in this same year, the Government asked Dr June Crown to evaluate prescribing by non-medical professionals in recognition that practice had moved on, and with it the need for expansion of the Nurse Prescribers Formulary.

### **1.3 WHAT DOES THE HEALTH COMMUNITY THINK ABOUT THE ROLE EXTENSION?**

#### **1.3.1 Opposition from the medical profession**

Extension of prescribing rights to non-medical healthcare professionals has been a key policy in NHS modernisation which could lead to an “over-lapping” of inter-professional roles within healthcare.<sup>10</sup>

When the Crown report was published in 1999,<sup>11</sup> it quickly lead towards further expansion of non-medical prescribing by not only nurses, but also pharmacists, and then onto chiropodists and podiatrists, physiotherapists, radiographers<sup>12</sup> and optometrists in 2005.<sup>13</sup> (*For detail see History of non-medical prescribing section 1.7 p35*)

Each time that further expansion of prescribing rights was consulted upon, the BMA vigorously criticised further expansion. After the 1999 Crown Report<sup>11</sup> was published, the BMA made a press release criticising some of the main recommendations of this report.<sup>14</sup> The BMA stated that they believed that the report "fails to establish a case for a change to pharmacy prescribing." On the proposal that two types of prescribers— independent and dependent—should be recognised, the BMA stated that an extended role for pharmacists would best be facilitated by health professionals working as part of a closely integrated team. It supported appropriately trained pharmacists and



practice nurses assuming the role of dependent prescriber but had reservations about high street pharmacists doing likewise. The BMA rejected the idea that dependent prescribers would be able to alter prescriptions issued by General Practitioners (GPs). It also stated that problems of patient confidentiality could arise if, as the report recommended, local pharmacists had access to practice records. Several resource issues are raised in the report, the association says, "Not least that there will be an overall increase in prescribing and a consequent increase in costs. This would have implications for primary care group budgets."

In 2002, the consultation for supplementary prescribing by nurse and pharmacists was underway<sup>15</sup> and during that year, the editor of the *Lancet*, Richard Horton, went on record with his concerns about the extension of nurse prescribing and the rate at which it was happening.<sup>16</sup> Dr Horton illustrated his argument with the opposing views from the medical and nursing profession, with a BMA representative stating that "The training nurses will get is nothing like sufficient and will not give them the clinical knowledge they need to prescribe these drugs"<sup>17</sup> and Mark Jones, a primary-care policy adviser at the Royal College of Nursing stating that "nurses should be able to prescribe anything they need for the care of their patients from the whole British National Formulary". Dr Horton thought that both positions were untenable, and thought that the rate at which nurse-prescribing was being implemented was too fast. He thought that nurses were being manipulated, under the guise of providing quicker and more efficient access to health care, to fill gaps left by too few doctors. He thought that giving nurses prescribing rights was not a major advance in professional status for nurses but merely redrawing the boundaries of a profession to serve an acute political problem, with little regard for the impact it would have on nursing or the care of patients. Dr Horton also went onto question the curricula of nursing courses and whether there was sufficient pharmacology education and also to question whether this would lead towards the blurring of inter-professional barriers.

In response to the aforementioned letter, an American healthcare professional agreed that nurse prescribing was developed in United States of America (USA) in response to a physician shortage in rural areas, and states that in such times, the medical profession has not shortened training duration nor lowered its standards. Yet, nursing has allowed a faster turnout of nurses, and now is being lured under the guise of power and glamour, to allow lesser-educated and trained nurses to obtain prescriptive

authority. The author advocates that nurse training in the United Kingdom (UK) should be standardised to reduce discrepancies between training of basic registered nurses, for whom education ranges from 2 to 4 years.<sup>18</sup>

In November 2005, when it was announced that pharmacists and nurses were to have their prescribing rights further extended to become independent prescribers and the BMA were again, highly critical of the government's decision. The chairman of the BMA stated that "It is difficult to see how healthcare professionals who are not trained to diagnose disease can safely prescribe appropriate treatment".<sup>19</sup> The chairman of the BMA's Central Consultants and Specialists Committee described the extension of prescribing powers as "an irresponsible and dangerous move" and that "Patients will suffer. I would not have me or my family subject to anything other than the highest level of care and prescribing, which is that provided by a fully trained doctor". The chairman of the General Practitioners Committee stated that "This announcement raises patient safety issues, and we are extremely concerned that the training provided is not remotely equivalent to the five or six year's training every doctor has" and also that "While we support the ability of suitably trained nurses and pharmacists to prescribe from a limited range of medicines for specific conditions, we believe only doctors have the necessary diagnostic and prescribing training that justifies access to the full range of medicines for all conditions".<sup>19</sup>

### **1.3.2 Support from the medical profession**

However, not all correspondence in the *British Medical Journal* (BMJ) has been negative about the extension of prescribing rights. Avery and Pringle wrote that "just because these professionals can prescribe any drug from the *British National Formulary* (BNF), does it follow that they will do so? Furthermore, is it likely that they will prescribe beyond their competencies?" The authors do state that "It is worrying that, before launching this new policy, the Department of Health (DoH) has not waited for further evidence to accumulate, including studies that it has only recently commissioned." But conclude that "with appropriate training, support and governance in place, extended prescribing could combine the benefits of high quality pharmaceutical care with greater convenience and improved access to treatments for patients".<sup>20</sup> A consultant neonatologist also wrote in the BMJ to support specialist

nurses in special care baby units being able to prescribe independently, stating that it was a “triumph of common sense”.<sup>21</sup> So there are some areas of the medical profession that are supportive of the extension of non-medical prescribing.

Underlying all of this commentary that the BMA have published about non-medical prescribing is the issue of the medical profession having to deal with the psychological issue of other professionals encroaching on their territory. They may be feeling that their power, status and roles are under threat from other professionals.<sup>10</sup> The development of non-medical prescribing will lead towards redefinition of tasks and responsibilities and could potentially affect the hierarchy that exists where doctors are the most powerful healthcare professionals at the top of the chain of command.<sup>22</sup> Blenkinsopp summarizes the work of Child, Fores and Glover in her research paper to explain that if an innovation is perceived to threaten power and status of a profession, the members may seek to maintain the status quo.<sup>10</sup> Although it could be seen by the medical profession that extending pharmacy’s role is a way of encroaching upon their territory, it could also be seen as a way of expanding their empire through further subordination of pharmacy (as pharmacists are viewed as an occupational group to which doctors can delegate difficult or mundane tasks), or indeed it could be viewed in more “altruistic” terms, as a way of improving patient care.<sup>2</sup>

It has been suggested that the resistance of GPs to an increased clinical role for pharmacists may well be rooted in the fact that clinical identity is particularly important to doctors’ identity because of their lengthy training and the centrality of the concept of clinical autonomy.<sup>2</sup>

However, it is unsurprising that the medical profession has not welcomed this development with open arms, as the introduction of the development has been thrust upon them by the Government. Doctors may view this extension of prescribing rights as a challenge to their professional competence. By reacting like this, they will maintain a sense of control and reinforce their professional identity.<sup>2</sup>

A qualitative evaluation of GPs’ opinions upon extended roles for community pharmacists found that the doctors were happy to accommodate those parts of extended roles for community pharmacy that were routine and objected to those they considered undermined the boundary between the occupations.<sup>2</sup> Similar findings were reported from a qualitative evaluation of stakeholders in one NHS trust, where

medical staff had reservations about the introduction of non-medical prescribing, and thought that it should operate within controlled protocols.<sup>23</sup> Therefore doctors want to maintain ultimate authority by having controls and limitations of the powers that non-medical professionals will have. It is apparent that as a profession, they have serious misgivings about non-medical healthcare professionals having clinical autonomy as independent prescribers.

A recent qualitative exploration of GP's views<sup>10</sup> suggested that it was perceived that the introduction of the role extension for non-medical healthcare professionals was undertaken to meet two agendas; firstly under the NHS modernisation agenda of moving some clinical areas from secondary to primary care to contain costs and secondly to enhance access to prescribed medicines. Some of the participants perceived a hidden Government agenda to destabilise the medical profession's power base as they would no longer be the only healthcare professional (bar dentists) capable of independently prescribing.<sup>10</sup>

It is apparent that failure to embed this new role development within the culture and working practices of the healthcare team will run the risk of it being rejected or not taken seriously. Successful implementation of non-medical prescribing will depend upon the degree to which the healthcare team are prepared to accommodate innovation.<sup>6</sup>

### **1.3.3 Opposition from the Drugs and Therapeutics Bulletin and Committee on the Safety of Medicines (CSM).**

Concerns regarding non-medical prescribing have also been forthcoming from publications and committee's. Concerns were raised about the safety of non-medical prescribing in 2006 by the Drugs and Therapeutics Bulletin (2006, 44;33). They stated "We have concerns about safety, including lack of access to complete medical records, the brevity of prescribing training, the potential for adverse drug reactions and the possibility of prescribing outside areas of competence or expertise". The reason for these concerns was prompted by the fact that doctors' prescribing can be associated with high rates of adverse drug reactions, some of which might be avoidable. It added that "there is a lack of comparative data on prescribing errors or safety of prescribing by different professional groups."<sup>24</sup>

At a CSM meeting in October 2005 relating to the importance of prescribers developing diagnostic competence, and training and governance issues within and outside the NHS, the CSM emphasised the need for non-medical prescribers to have access to patients' records and said that this was a key point given that electronic medical records were not expected to be fully rolled out in England until 2010.<sup>24</sup>

#### **1.4 CONCERN OVER NURSES' PHARMACOLOGY KNOWLEDGE FOR PRESCRIBING**

The issue of the content of nurses' background training and whether it is sufficient for prescribing activities has not only been raised by other healthcare professions as a potential weakness in their ability to prescribe but has also been raised by the nursing profession themselves. In a literature review of the first phase of nurse prescribing (1993-2002)<sup>25</sup> and nurses' and others' views of their prescribing role, adequacy of nurses' knowledge base in pharmacology was identified as a concern, together with the need for further pharmacology training.

In a qualitative study of nurse lecturers' observations on nurse prescribing training, respondents felt that their students had particular concerns about pharmacology, and that students often cited lack of pharmacological knowledge as being a concern in order to ensure informed decisions could be made about prescribing. However other lecturers felt that nurses claimed inadequate knowledge of pharmacology when what they were actually lacking was confidence or motivation to prescribe. Some lecturers had considered whether preparatory material would benefit nurses who felt weak in this area.<sup>26</sup>

Similar observations were made in the results of a mail survey undertaken by While and Biggs<sup>27</sup> where health visitors and district nurses who had qualified as independent prescribers in three trusts in Southern England did not rate their pharmacological training as highly as other aspects in their course. The authors suggest that this could also reflect a reluctance of some nurse practitioners to prescribe.

A qualitative study of nurse prescribers' perceptions of their pharmacology educational needs found that nurses had a limited understanding of pharmacology and dissatisfaction with the teaching of pharmacology, with resulting anxiety on qualifying.<sup>28</sup>

As illustrated in the section above (section 1.3.1 p. 23), although there has been a lot of negativity from the medical profession about nurses being prescribers and about their pharmacology knowledge, some members of the British Pharmacological Society have also been critical about the quality of prescribing by doctors, pointing out that in 1994, UK medical students received a median of 61 hours of teaching related to pharmacology, clinical pharmacology and therapeutics.<sup>29</sup> They state that the root cause of prescribing errors among final year medical students is the lack of an integrated scientific and clinical knowledge base and advocate the use of a syllabus to ensure that medical students are adequately trained and that partnerships with other prescribers, such as pharmacists and nurses might also be useful.

When prescribing by non-medical healthcare professionals is commented upon in literature, it tends to focus upon nurses. This could be because pharmacists are a much smaller group of healthcare professionals compared to nurses, or because any concerns being discussed are not applicable to pharmacists. Obviously, with the extensive pharmacology training that pharmacists have as part of their undergraduate course, this is not a concern that can be raised against pharmacists as non-medical prescribers. Instead, as is recognised by the profession itself, it is the diagnostic and physical examination skills that pharmacists are lacking. It is recognised that diagnosis itself is a complex skill, which doctors themselves do not always get right, so there is certainly concern as to how well nurses and especially pharmacists will be equipped to undertake this activity as an independent prescriber.<sup>19</sup>

Considering that nurses and pharmacists are having intensive training in how to prescribe, it has been suggested that there ought to be one exam that ALL prescribers (including doctors) should take in order to assess competency to prescribe. (*Oral communication, Professor Judy Cantrill, British Pharmaceutical Conference, Manchester 2003.*) It will be interesting to see whether the General Medical Council (GMC) will start to provide prescribing training in line with the standards brought in by the nursing and midwifery council and the Royal Pharmaceutical Society of Great Britain.

## **1.5 REASONING FOR REVIEWING NURSE PRESCRIBING HISTORY AND EVIDENCE**

Nurses have had a much longer history of prescribing privileges than pharmacists and development of nurse prescribing has “paved the way” for non-medical prescribing. Indeed district nurses and health visitors have nationally been able to independently prescribe from the Nurse Prescriber’s Formulary (NPF)<sup>9</sup> since 1998. In March 2007 there were 10,750/686,886 (1.57%) qualified nurse independent/supplementary prescribers, 34,000 (4.95%) community practitioner nurse prescribers, and 1648 (0.24%) nurse independent prescribers (most up to date figures available).<sup>30</sup> In March 2008 there were 1065 registered supplementary prescribing pharmacists (figures from RPSGB) out of a total of 47,621 (2008)<sup>31</sup> pharmacists on the register (2.24%), there are 75 registered independent prescriber pharmacists and 327 pharmacists that are registered as both supplementary and independent prescribers. Hence nurses form the largest category of non-medical prescribers.

It is recognized that without the development of nurse prescribing, pharmacist prescribing (leading onto prescribing rights for other non-medical health care professionals) would not have come into fruition. Hence it is important to discuss how non-medical prescribing started by reviewing how it developed in the nursing profession.

### **1.5.1 Reasoning for not including other healthcare professionals prescribing evidence**

In November 2002, it was announced that supplementary prescribing by nurses and pharmacists was going to become legalized in the United Kingdom, pending legislative changes.<sup>32</sup> This lead onto other non-medical professionals such as registered chiropodists and podiatrists, physiotherapists, radiographers<sup>12</sup> and optometrists<sup>13</sup> having supplementary prescribing rights extended to them (once appropriate training is undertaken) in May 2005 (June 2005 for optometrists). However, uptake of supplementary prescribing by these allied health professionals has been minimal (chiropodists and podiatrists  $13/12,537 = 0.1\%$ , physiotherapists  $20/39,821 = 0.05\%$ ), radiographers  $0/23,845^{33}$  –(figures as of March 2007), Optometrists =  $10/11,056 = 0.09\%$  (*figures supplied by the General Optical Council*

[www.optical.org/](http://www.optical.org/) April 2007) and independent prescribing has not (yet) been extended to these other groups of health care professionals. Hence when discussing non-medical prescribing, the focus shall be reviewing the research available from the nursing and pharmacy profession.

## **1.6 HISTORY OF NURSE PRESCRIBING 1986-2005**

### **1.6.1 Origins- supply versus prescription (Patient Group Directions (PGDs))**

It is important to note when discussing the development of nurse prescribing, there are various methods of supply of medicines which are sometimes included under the “umbrella-term” of “prescribing” by people without fully understanding the distinct difference between supply and prescription of medicines.

During the development of nurse prescribing, a method for *supply* of medicines was developed that could be used by any fully qualified and registered health professionals. This method of supply is NOT a form of prescribing, but was a move towards non-medical health care professionals being able to supply medicines without the need for a doctor to write a prescription. The method developed was called group protocols, which is defined as follows:

*“A Group Protocol is a specific written instruction for the supply or administration of named medicines in an identified clinical situation. It is drawn up locally by doctors, pharmacists and other appropriate professionals, and approved by the employer, advised by the relevant professional advisory committees. It applies to groups of patients or other service users who may not be individually identified before presentation for treatment”.*<sup>34</sup>

This method of supply was then re-named “Patient Group Directions” (PGDs) in 2000, but used the same definition. This was done in order to distinguish them from policies, procedures or clinical guidelines.<sup>4</sup> The health service circular regarding PGDs (2000)<sup>35</sup> further defined who could supply or administer medicines under a patient group direction as nurses; midwives; health visitors; optometrists;



pharmacists; chiropodists; radiographers; orthoptists; physiotherapists and ambulance paramedics. They can only do so as named individuals.

As PGDs are not a recognised form of prescribing, they will not be further discussed in this thesis.

### **1.6.2 The development of nurse prescribing**

- Neighbourhood Nursing Review (Cumberlege Report) (DHSS, 1986)
- Crown I, 1989 (DoH, 1989)
- Medicinal Products; Prescription by Nurses etc Act 1992
- Medicinal Products; Prescription by Nurses etc Act (Commencement No 1) Order. (Secondary enabling legislation) 1994
- Pilot sites for use of the Extended Formulary for Nurse Prescribers (1994), expanded 1996
- Crown II, Part 1 (Group protocols) (DoH, 1998) –(*see origins section 1.6.1 p.31*)
- Crown II, Part 2 (Prescribing) (DoH, 1999)
- Patient Group Directions, (NHS Executive, 2000) –(*see origins section 1.6.1 p.31*)
- Consultation on expansion of nurse prescribing, (DoH, 2000)
- Extended prescribing proposals (DoH, 2001)
- Health and Social Care Act, 2001
- Consultation on Supplementary Prescribing (MCA, 2002) –*Discussed in “History of Non-Medical Prescribing” (from 1997) section 1.7 p.35*
- Supplementary prescribing proposals, (DoH, 2002) –*Discussed in “History of Non-Medical Prescribing” (from 1997) section 1.7 p.35*
- Nurse prescribers extended formulary: proposals to extend range of prescription only medicines - consultation. (DoH, 2003)
- Nurse and pharmacist prescribing powers extended. (DoH, 2005)

**Figure 1: Key landmarks in the development of Nurse Prescribing 1986-2005**

Figure 1 (p 32) shows the landmark reports that have led to the development of nurse prescribing. As shown in Figure 1 (p32), the Cumberlege report of 1986<sup>36</sup> first suggested that nurses ought to be able to prescribe in the community. In 1989 an advisory group chaired by June Crown developed the emphasis on extended nurse roles further by suggesting that health visitors and district nurses ought to be able to prescribe from a limited formulary.<sup>37</sup>

Community nurses first started to prescribe medication in 1994 in eight pilot sites, from the Extended Formulary for Nurse Prescribers, when enabling secondary legislation was brought in.<sup>38</sup> These sites expanded to 60 in 1996.<sup>4</sup> In 1998, after piloting and evaluation, the secretary of state announced plans to extend nurse prescribing nationally and hence district nurses and health visitors were able to independently prescribe from the Nurse Prescriber's Formulary (NPF).<sup>9</sup>

Extension of prescriptive authority was developed further in the second Crown report<sup>11</sup> where it was advocated that nurses should be able to prescribe from a wider list of medications within a supervised relationship, termed supplementary prescribing.

The Department of Health<sup>39</sup> advocated that nurse prescribing should be seen as part of the modernizing agenda for the nursing profession in the report "Making a Difference" and further recommended that over half of all registered nurses should have limited prescriptive authority by 2004.<sup>40</sup>

In October 2000, the Department of Health announced the publication of a consultation upon the further extension of nurse prescribing<sup>41</sup> to become extended prescribers who could prescribe any General Sales List (GSL) and Pharmacy-only (P) medicines plus certain Prescription Only Medicine (POM) for specified conditions. The announcement that an extension to their prescribing was going to be legalized happened in May 2001.<sup>42</sup>

Since April 2002, other groups of nurses, following extended training, were able to independently prescribe from a specific list of POMs, alone or in combination to treat specific conditions (e.g. trimethoprim for uncomplicated urinary-tract infections in women) as well as all GSL and P medicines as Extended Formulary Nurse Prescribers (EFNPs).<sup>43,44</sup> At the end of April 2003, a consultation was published by the Department of Health to further extend the range of medicines that this group of

nurses could prescribe and also extend the range of conditions they could treat.<sup>44</sup> This went ahead, but by the time that independent prescribing was being consulted upon, it was apparent that there was no need for extended prescribing by nurses and hence on 10<sup>th</sup> November 2005 it was announced that from spring 2006, qualified Extended Formulary nurse prescribers would be able to prescribe any licensed medicine for any medical condition (and some specified controlled drugs for specified medical conditions) as independent prescribers and that the extended formulary would cease to exist.<sup>45</sup>

## **1.7 THE HISTORY OF NON-MEDICAL PRESCRIBING FROM 1997**

*(Applicable to nurses and pharmacists)*

During 1999 to 2002 there were several important reports published from the Department of Health and various other agencies which culminated in the legalisation of supplementary prescribing by nurses and pharmacists:

### **1.7.1 Review of Prescribing, Supply and Administration of Medicines Final Report –March 1999.<sup>11</sup>**

In 1997, the Government started a consultation process, chaired by Dr June Crown, which led to a complete review of prescribing, supply and administration of medicines.<sup>11</sup> It was felt that the time had come for a review of these processes as the systems that were in use no longer reflected the needs of modern clinical practice.<sup>11</sup> There had been changes in the training and roles of healthcare professionals from all disciplines, changes in the range, potency and formulation of medicines available and a perceived need to allow patients to become more involved in their treatment and to improve access to healthcare for patients.<sup>11</sup>

This report advocated the extension of prescribing rights beyond the currently authorised prescribers (doctors, dentists and certain nurses). The review team suggested two different types of prescriber that should be recognised:

a.) the *independent* prescriber who is responsible for the assessment of patients with undiagnosed conditions and for decisions about the clinical management required, including prescribing.<sup>11</sup>

b.) the *dependent* prescriber who is responsible for the continuing care of patients who have been clinically assessed by an independent prescriber. This continuing care may include prescribing, which will usually be informed by clinical guidelines and will be consistent with individual treatment plans; or continuing established treatments by issuing repeat prescriptions, with the authority to adjust the dose or dosage form according to the patient's needs. There should be provision for regular clinical review by the assessing clinician.<sup>11</sup>

It was suggested that pharmacists and nurses in specialist areas would be suitable candidates to become dependent prescribers, and that chiropractors, podiatrists,

specialist physiotherapists and optometrists would be suitable candidates to become independent prescribers.

The report stipulated that the newly prescribing professional groups should “normally be limited to prescribing medicines in specific therapeutic areas related to the particular competence and expertise of the group and may include prescription only medicines within those areas”.<sup>11</sup>

The report also suggested that “a UK-wide advisory body, provisionally entitled the “New Prescribers Advisory Committee”, should be established to assess submissions from professional organisations seeking powers for suitably trained members to become independent or dependent prescribers.”

### **1.7.2 Pharmacy in the Future-Implementing the NHS plan (Sept 2000)<sup>46</sup>**

This document established how the Government envisaged the development of pharmacy services. It mainly focused on increasing access to healthcare for patients and also giving patients more support and advice about taking their medicines, to reduce morbidity and waste.<sup>46</sup>

This report echoed recommendations in the Review of prescribing, supply and administration of medicines report (1999)<sup>11</sup> by repeating that pharmacists would be able to prescribe in certain circumstances and also stipulated that pharmacists would be able to dispense repeat prescriptions for patients so that patients did not need to see the GP every time they needed a repeat supply of medication.<sup>46</sup>

### **1.7.3 The Health and Social Care Act (May) 2001<sup>47</sup>**

Section 63 of the Health and Social Care Act 2001 enabled the Government to extend prescribing responsibilities to other health professions, including pharmacists. It also enabled the introduction of new types of prescriber, including the concept of supplementary prescriber, by allowing Ministers by Order to attach conditions to their prescribing. Section 42 (for England and Wales) and Section 44 (Scotland) also relate to dispensing by community pharmacists of prescriptions written by these new prescribers.

Provisions in Northern Ireland (NI) are a matter for relevant NI legislation. It was expected that amendments to the POM Order and NHS regulations to allow supplementary prescribing by suitably trained nurses and pharmacists would be in place by April 2003.<sup>48</sup>

#### **1.7.4 A spoonful of sugar- Medicines management in NHS hospitals (Dec 2001)<sup>49</sup>**

This report by the audit commission identified the pharmacist as a central figure in medicines management. The report states that pharmacists should concentrate on their clinical, patient-centred roles, to help minimize medication errors and manage risk. It also considers that pharmacists should reduce their traditional role of retrospective prescription monitoring. It also advocated the introduction of pharmacist prescribing.

#### **1.7.5 The Right Medicine- A strategy for pharmaceutical care in Scotland (Feb 2002).<sup>50</sup>**

This report upon the development of pharmacy services in Scotland also stated that after the recommendations of the Review of Prescribing, Supply and Administration of Medicines report<sup>11</sup> it would implement pharmacist prescribing by December 2003.

#### **1.7.6 MLX284- Proposals for supplementary prescribing by nurses and pharmacists and proposed amendments to the prescription only medicines (human) order 1997 (April 2002)<sup>15</sup>**

This consultation document set out the proposed framework for supplementary prescribing. (Dependent prescribing was renamed as supplementary prescribing which was deemed to be a more appropriate term.) These proposed changes to the POM order would allow POM medicines to be prescribed by a supplementary prescriber throughout the UK. However, the extent to which supplementary prescribing was adopted within the NHS in devolved administrations is a matter for each of the separate administrations.<sup>15</sup>

The consultation document set out a new definition for supplementary prescribing as well;

“ A voluntary partnership between the responsible independent prescriber and a supplementary prescriber, to implement an agreed patient-specific clinical management plan with the patient’s agreement, particularly but not only in relation to prescribing for a specific non-acute medical condition or health need affecting the patient.”<sup>15</sup>

The document also set out the conditions that need to be met for supplementary prescribing to take place;

- The independent prescriber must be a doctor or dentist, as appropriate
- The supplementary prescriber must be a registered nurse, (including a registered health visitor), a registered midwife or a registered pharmacist
- There must be a written clinical management plan (CMP) relating to a named patient and to that patient’s specific condition, and that plan must be agreed and signed by both the independent and supplementary prescribers
- The CMP must specify the range of medicines that may be prescribed for the named patient by the supplementary prescriber, also specify the range and circumstances within which the supplementary prescriber can vary dosage, frequency and formulation of the specified range of medicines as appropriate, and when to refer back to the independent prescriber.
- The CMP must contain the relevant warnings about any known sensitivities of the patient to particular medicines and include arrangements for the notification of any adverse drug reactions.
- The CMP must contain the date on which the supplementary prescribing arrangements should be reviewed, which should normally be no longer than one year.
- Both independent and supplementary prescribers must share access to, consult and use the same common patient record.<sup>15</sup>

It was proposed that supplementary prescribing would be utilised most frequently to treat non-acute, chronic conditions such as asthma, diabetes etc. or for specific health needs such as anticoagulant monitoring, Hormone Replacement Therapy (HRT) or prophylaxis against coronary heart disease.<sup>15</sup>

It was also proposed that the range of medicines that could be prescribed in this arrangement should not be restricted. The only type of drugs that could not be prescribed were controlled drugs as this would require changes in home office legislation.<sup>15</sup>

The supplementary prescriber would be responsible for monitoring and assessing the patient's progress and prescribing for the patient as set out in the clinical management plan. The supplementary prescriber would also only prescribe within their clinical competence, and accept clinical responsibility and professional accountability for their prescribing decisions in practice.<sup>15</sup>

The pharmacist or nurse wishing to undertake the supplementary prescribing role would have to undertake a period of training (25 days) followed by a period of supervision in practice by the independent prescriber (12 days).<sup>15</sup> However, if the nurse had already become qualified as an extended formulary nurse prescriber, they would only need to undertake an extra 2 days of training.

On 21st November 2002, it was announced that supplementary prescribing by nurses and pharmacists was going to become legalised, pending legislative changes.<sup>32</sup> It was expected that pharmacists would start training in England and Wales for supplementary prescribing by spring 2003.<sup>51</sup>

#### 1.7.6.1 Aims of supplementary prescribing

Supplementary prescribing was intended to provide patients with quicker and more efficient access to medicines, and to make the best use of the skills of trained nurses and pharmacists. Over time, it was envisaged that supplementary prescribing would also reduce doctors' workloads, freeing up their time to concentrate on patients with more complicated conditions and more complex treatments. Time spent initially developing a simple CMP, should be time saved when the patient returns for review to the supplementary prescriber rather than the doctor.

#### **1.7.7 The Royal Pharmaceutical Society of Great Britain Pharmacist Prescribing Task Group, First Report, Supplementary prescribing by pharmacists (July 2002)<sup>52</sup>**



This report was an interim report addressing the issues related to the introduction of supplementary prescribing by pharmacists, and was produced to assist the Society in the preparation of a response to the Government's consultation document, MLX284.<sup>15</sup> Several recommendations were made for the Department of Health, the RPSGB and to the NHS and higher educational funding councils. A new definition of supplementary prescribing was suggested;

“ A voluntary partnership between the independent prescriber and a supplementary prescriber, to implement an agreed patient-specific clinical management plan with the patient's agreement”.<sup>52</sup>

For the Department of Health, the task group recommended that the prescribing partnership must have as a prerequisite an agreement on access to medical records and clear arrangements for sharing information. It also suggested that serious consideration should be given to the introduction of patient held records and that more clear definition and guidance was needed upon the clinical management plan.<sup>52</sup>

There were several recommendations for the RPSGB; firstly that they needed to develop national standards for clinical governance programmes designed to meet the specific needs of all supplementary prescribers. That they draw up appropriate course and programme specifications to meet the needs of pharmacists and pharmacy undergraduates. Also they should work with the DoH to develop a competency framework for pharmacist supplementary prescribing, and also criteria for the demonstration of ongoing competency as part of continuing professional development. Novel approaches to Continuing Professional Development (CPD) also need to be developed, and an appropriate byelaw needed to be drafted to allow separate indication or annotation of the Register of Pharmaceutical Chemists to record the prescribing status of registered pharmacists.<sup>52</sup>

The task group also recommended that the workforce confederation of the NHS and the higher education funding councils be requested to consider resource implications for the education and training requirements, and provide the necessary funding support.<sup>52</sup>

### **1.7.8 Outcome of the consultation exercise on proposals for supplementary prescribing by nurses and pharmacists (September 2002)<sup>53</sup>**

The Medicines Controls Agency (MCA) received 765 valid replies. Nine of these replies made no comment on the proposals or had no views either way. 678 replies supported the proposal overall although had some concerns about various aspects. 78 replies objected in principal to supplementary prescribing.

An outline curriculum for training programmes to prepare pharmacist supplementary prescribers was published by the RPSGB in November 2002.<sup>54</sup>

Amendments to the POM order and NHS Regulations were laid early in 2003 to enable the introduction of supplementary prescribing.<sup>51</sup>

### **1.7.9 Consultation on proposals to introduce independent prescribing (IP) by pharmacists (MLX 321) (2<sup>nd</sup> March 2005-25<sup>th</sup> May 2005)<sup>55</sup>**

This 12 week consultation was undertaken to help determine:

- Whether any restrictions should be placed on prescribing in terms of medical conditions and / or range of medicines that might be used.
- The requirements of the different ranges of prescribing; activity in the different sectors where pharmacists work.
- What kind of training and support is needed?
- Which individuals will be considered to go forward for prescribing training?

### **1.7.10 Nurse and pharmacist prescribing powers extended- press release 10<sup>th</sup> November 2005<sup>45</sup>**

This press release announced that from spring 2006, qualified Extended Formulary nurse prescribers and pharmacist independent prescribers would be able to prescribe any licensed medicine for any medical condition - with the exception of controlled drugs (CDs). (Consultation by the Home Office upon CD prescribing by IPs occurred in April-June 2007<sup>56</sup> and the right to prescribe controlled drugs were subsequently extended to nurse and pharmacist independent prescribers)

### **1.7.11 Improving patient's access to medicines: A Guide to Implementing Nurse and Pharmacist Independent Prescribing within the NHS in England (April 2006)<sup>57</sup>**

The DoH working definition of Independent Prescribing from this guide to implementation is as follows:

*“Prescribing by a practitioner (e.g. doctor, dentist, nurse, and pharmacist) responsible and accountable for the assessment of patients with undiagnosed or diagnosed conditions and for decisions about the clinical management required, including prescribing”.*

The aims of Independent Prescribing from this guide are as follows:

- Improve patient care without compromising patient safety
  - Make it easier for patients to get the medicines they need
  - Increase patient choice in accessing medicines
  - Make better use of the skills of health professionals
  - Contribute to the introduction of more flexible team working across the NHS
- Nurses must have 3 yrs post-registration experience, of which 1 year must be in the clinical area they are to prescribe in
  - Pharmacists must have 2 years post-registration experience in a clinical environment (primary/secondary care)

### **1.7.12 Curriculum for the Education and Training of Pharmacist Supplementary Prescribers to become Independent Prescribers (RPSGB) (September 2006)<sup>58</sup>**

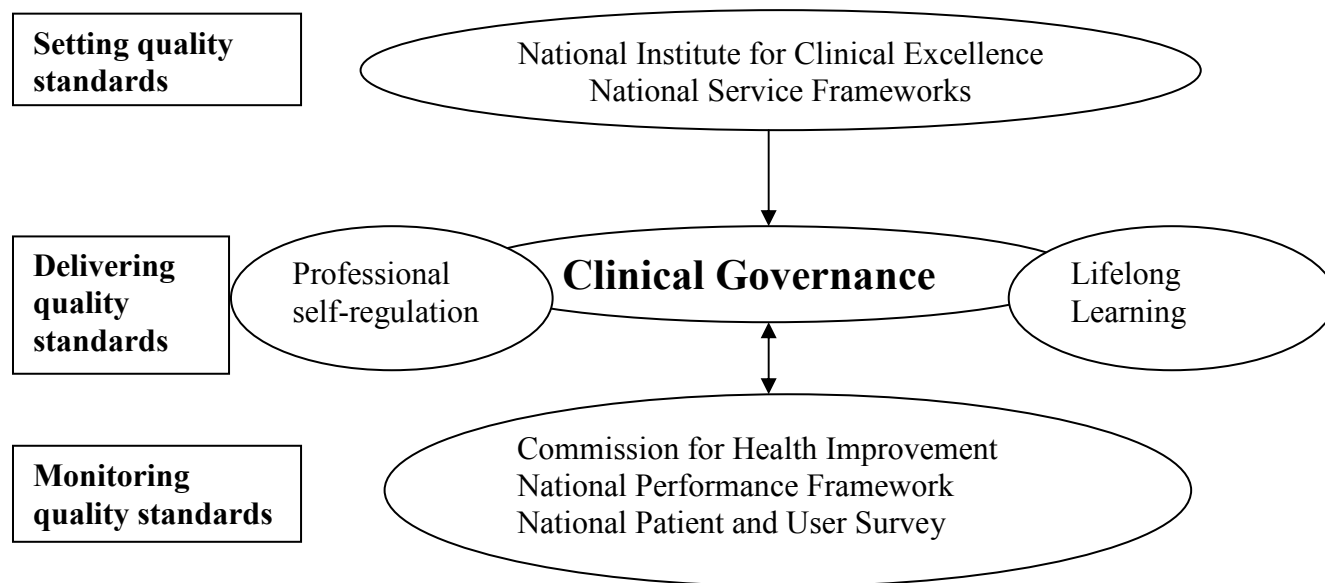
This curriculum to prepare pharmacist independent prescribers was developed from the curriculum for supplementary prescribers published by the RPSGB in November 2002.<sup>54</sup> The increase in professional autonomy, clinical assessment and responsibility and the associated legal and ethical implications form the basis of the curriculum for conversion programmes. Pharmacists who successfully

complete an accredited programme are awarded a *Practice Certificate in Independent Prescribing*.

The following health care professionals can act as IP's in the UK:

- Registered nurses (First Level)
- Registered specialist Community Public Health Nurses
- Registered Midwives
- Registered Pharmacists

## 1.8 CLINICAL GOVERNANCE, RISK AND PRESCRIBING



**Figure 2: Clinical governance; Setting quality standards, delivering quality standards and monitoring quality standards. (Reproduced from Pharmacy In Practice Journal<sup>59</sup>)**

### 1.8.1 What is Clinical Governance?

The theory of clinical governance was first developed in the Department of Health publication “A first class service: quality in the NHS”.<sup>60</sup> This report set out the government’s policy for raising quality for NHS patients and services. The policy involved setting standards through the National Institute for Clinical Excellence (NICE) and the National Service Frameworks (NSF), and monitoring standards through the Commission for Health Improvement (CHI), patient forums and national patient satisfaction surveys (as illustrated above in Figure 2). Central to this process would be delivering higher quality services through better self-regulation.<sup>61</sup>

The definition of clinical governance given in the report “A first class service: quality in the NHS”<sup>60</sup> was: “A framework through which NHS organisations are accountable for continuously improving the quality of their services and safeguarding high standards of care, by creating an environment in which excellence in clinical care will flourish”.

The RPSGB then published its policy document “Achieving excellence in pharmacy through clinical governance”<sup>62</sup> in 1999. This document set out a framework for how pharmacists could deliver clinical governance.

Reports such as “Building a safer NHS for patients”<sup>63</sup> and the launch of the National Patient Safety Agency (NPSA) in 2001 have changed the focus of clinical governance and have mapped out the quality agenda in terms of the NHS plan’s<sup>40</sup> objective of a patient-centred NHS.<sup>61</sup>

Clinical governance consists of a series of processes (Continuing Professional Development (CPD), evidence-based practice, audit, dealing with poor performance, risk management, monitoring clinical care and patient involvement) for improving quality and ensuring that professionals are accountable for their practice. These processes are extremely relevant to the non-medical prescriber, and help to provide a framework to ensure patient safety.

### **1.8.2 The issue of legal responsibility for pharmacist-written prescriptions before supplementary prescribing was legalised (pre 2004).**

When this research work was started in 2001, there were published studies available which showed that various forms of pharmacist prescribing were being undertaken within secondary care:

#### **Reported types of pharmacist “prescribing” being undertaken in the UK until 2001**

- Writing discharge prescriptions<sup>64-75</sup>
- Pre-admission clinic prescribing (in-patient charts & discharge prescriptions)<sup>76-82</sup>
- Anticoagulant prescribing<sup>83-92</sup>
- Specialist clinics<sup>93-95</sup>
- Prescription amendment/ therapeutic substitution<sup>96-98</sup>

However, hospitals that have employed pharmacists in a “prescribing” capacity faced the problem of this role not being a legal one for pharmacists to undertake. Some hospitals overcame this obstacle by asking the doctor to co-sign the in-patient drug-chart or discharge prescription that the pharmacist had written.<sup>70, 74-75, 77, 78, 99</sup>

The Medicines Act 1968<sup>100</sup> does not define what a prescription is or what a hospital is. It is therefore not surprising that there was no authoritative interpretation of the legality of prescriptions written by non-medically qualified personnel.<sup>101</sup>

The inpatient drug chart is not a prescription, but is an authority to administer a medicine. Cousins and Luscombe questioned whether there was a need for a doctor to co-sign the in-patient drug chart when it has been written by a pharmacist. –As long as a medical practitioner had originally prescribed the drug, and this could be traced back to the GP or a written protocol, it should not be necessary to seek a co-signature.<sup>102</sup>

Therefore some hospitals have developed pharmacist prescribing without the issue of authorisation of the discharge prescription becoming an obstacle, as the law is not clear in this area and could be interpreted in different ways.

As previously stated, during this period there was no legal framework for non-medical professionals to write discharge prescriptions. In the absence of a recognised definition of transcribing, it was also unclear whether the process of writing the discharge prescription was prescribing or transcribing.

The guidance in the Medicines, Ethics and Practice guide (2006)<sup>103</sup> suggested that the process was transcription, and states that “Providing the entry (upon the patient’s bed card) fulfils the requirements, the details can be transposed onto an order form, to be used in pharmacy to prepare the take home medication. It is good practice for the transposition to be carried out by a pharmacist. By carrying out this transposition the pharmacist is NOT prescribing, as the original direction to supply was made by a practitioner.”

However, in undertaking the act of transcription, there is an implied professional obligation upon the pharmacist to review the prescribed medicines and to respond appropriately to any errors or inappropriate prescribing. If this process did not occur then you would not need a pharmacist to copy one list of medicines to another- a medical secretary could do this. Therefore does this professional review of the prescription change the process from merely transcribing to prescribing?

One of the key issues seems to be the question of who would be legally responsible for discharge prescriptions that are written by pharmacists. Anecdotal evidence suggests that some hospitals operating Pharmacist Discharge Prescription

Transcription Service (PDPTS) are asking the doctor to co-sign the prescriptions that are written by pharmacists, whilst other hospitals are not.

The Department of Health's recent discharge document<sup>104</sup> suggests that the medical practitioner is still responsible for signing the prescription where medication changes have been made. This would suggest that *only* if the pharmacist reviews the drug chart and wants to change any of the medications, the discharge prescription would need signing by the doctor. If the pharmacist makes no changes to the medication, it would not need signing by the medical practitioner, but the medical practitioner would be responsible for it. It would appear that hospitals that are not asking a doctor to sign the discharge prescription where changes have been made to the medication are producing illegal prescriptions.

### 1.8.3 Clinical Governance and Prescribing from 2004

It is acknowledged that non-medical prescribing will not work without tight adherence to clinical governance processes as outlined above. An editorial in the BMJ concluded that “with appropriate training, support and **governance** in place, extended prescribing could combine the benefits of high quality pharmaceutical care with greater convenience and improved access to treatments for patients”.<sup>20</sup> The Drugs and Therapeutics Bulletin (DTB) (2006, 44;33) which raised concerns about non-medical prescribing also emphasized how important adherence to clinical governance processes would be: “It is therefore crucial that non-medical prescribing occurs within the context of **rigorous clinical governance frameworks**, close monitoring of safety, and ongoing training and professional development.” David Pruce, the director of practice and quality improvement at the Royal Pharmaceutical Society, responded to this article by stating that “We are pleased that the DTB recognises the potential of pharmacist prescribing and we want to reassure it and the public that pharmacist prescribing will be safe and the training is adequate to prepare pharmacists to be independent prescribers. We concur fully that non-medical prescribing needs to occur within the context of a rigorous clinical governance framework and this is why we developed a clinical governance framework....We are confident that pharmacists will only prescribe within their areas of competence just as other prescribers with similar prescribing rights also limit their prescribing to their areas of competence”.<sup>24</sup>



#### **1.8.4 Clinical Governance guidance available to pharmacist prescribers**

The Royal Pharmaceutical Society published a clinical governance framework to help ensure that patient safety is an integral part of pharmacist prescribing.<sup>105</sup> This framework was for the use of individual pharmacist prescribers as well as organisations throughout Britain that commission or participates in pharmacist prescribing. For the individual it provides suggested indicators of good practice for pharmacist prescribing and examples of good clinical governance practice relating to prescribing. On the organisational side it looks at the organisational components of clinical governance and what might need to be put in place within an organisation to support clinical governance of pharmacist prescribing.<sup>106</sup>

The Society's head of quality improvement, Heidi Wright, said: "This clinical governance framework should be used in conjunction with the competency framework for pharmacist supplementary prescribers developed by the National Prescribing Centre (NPC). Many of the recommendations in the Society's clinical governance framework need to be implemented as part of the wider organisational work on managing prescribing and medicines management".<sup>106</sup>

Another key document that pharmacist supplementary prescribers need to refer to in terms of maintaining their competency is the "Maintaining Competency in Prescribing- An outline framework to help pharmacist supplementary prescribers"<sup>107</sup> published by the National Prescribing Centre. Although this document only focuses on competency, this is an integral process within the clinical governance framework. This document is very important for helping local organisations as well as the individual recognise the standard that they need to achieve in different aspects of prescribing.

The RPSGB Code of Ethics<sup>103</sup> (Annex A) also details specific professional obligations for pharmacist prescribers that require pharmacists to prescribe responsibly and in their patient's best interest.

#### **1.8.5 Risk Management**

It is important that non-medical prescribers engage with clinical governance processes because prescribing is a high-risk activity<sup>108</sup> where patients can be seriously harmed if

it is not done in a safe manner. Errors made during prescribing are the most common type of avoidable medication error.<sup>108</sup> Hence it is not surprising that there would be concern about non-medical healthcare professionals undertaking this new role, not only from the medical profession, but also from the non-medical professionals themselves.

The report “Building a Safer NHS for patients. Improving medication safety (2001)”<sup>63</sup> reviewed the causes and frequency of medication error and identified models of good practice to improve medication safety.

It found that the causes of errors were complex, involving human lapses and mistakes. Attention was usually focused on the actions of individuals who were considered to be the cause of error, the report warned. However, it found that systems weaknesses that predisposed to human error were important and recommended checks and error traps that should be built into all medication processes, including **prescribing**, dispensing, and drug administration.<sup>109</sup>

Key steps proposed by the report for safer prescribing<sup>63</sup> included active management and review of long term repeat prescribing; clear treatment plans shared with all professionals involved in a patient’s care and double-checking of all complex dose calculations. Also, greater use of information technology- including implementation of electronic care records and effective electronic prescribing systems was considered central to reducing risk of medication error.

The report noted that current guidance and standards on prescribing, dispensing and administration of medicines are fragmented and divided between a range of professional and NHS regulatory bodies. A suggestion was therefore made that “Overarching national standards should be developed linking the various strands of medicines use within the NHS.” The National Patient Safety Agency and the National Institute for Clinical Excellence (NICE) have been asked to develop such standards.<sup>109</sup> “Building a Safer NHS for patients. Improving medication safety”<sup>63</sup> formed part of government efforts to reduce the number of serious **errors** in the use of prescribed drugs by 40% by 2005, an aim set by the Chief Medical Officer in 2001 (Organisation with a memory<sup>110</sup>). The health minister, Lord Norman Warner, said: "Improving quality of care and patient safety has always been at the heart of the government’s health strategy. A prescribed medicine is the most frequent treatment provided for NHS patients, so ensuring that drug treatment is safe is key".<sup>109</sup>

The Audit Commission further emphasized the problem of medication errors in UK hospitals and highlighted the importance of hospital pharmacists in preventing them.<sup>49</sup> More recently, media reports that blamed poor teaching of therapeutics to medical students for an apparent rise in safety incidents caused by poor prescribing has led the General Medical Council (GMC) funding new research (£100,000 initially) into the prevalence and causes of errors in prescribing in the NHS.<sup>111</sup>

Non-medical prescribers therefore need to be fully engaged with the clinical governance process to ensure that patient safety is maintained. Within the clinical governance framework, pharmacists are responsible for ensuring that their practice is safe and effective. For organisations that have pharmacist prescribers as employees, the RPSGB's guidance on clinical governance<sup>105</sup> stipulates that pharmacist prescribing should be included in clinical risk management (including Root Cause Analysis), patient safety (including the NPSA National Reporting and Learning Scheme), confidentiality, handling complaints and controls assurance programmes. For the individual pharmacist prescriber, they need to participate in local clinical risk assessment and management programmes, report any adverse drug reactions that their patients have via the CSM scheme and report critical incidents as part of the local critical incident reporting system (including the NPSA National Reporting and Learning Scheme). They must also be aware of local patient complaints procedures, have their own professional indemnity insurance and use complaints and compliments to identify learning needs and areas for improvement (as part of CPD portfolio).

### **1.8.6 Liability**

Pharmacist prescribers are expected to use their professional judgement and work within their professional competence. They are accountable for and must be able to justify their actions. They must ensure that all activities they undertake are covered by professional indemnity arrangements.<sup>112</sup>

When a pharmacist prescriber is employed by an NHS organisation, that organisation has vicarious liability for the pharmacist's actions. This does not replace the pharmacist prescriber's own professional accountability. In some circumstances, legal liability may be shared between the organisation and the professional. For the purposes of vicarious liability it is important that the prescribing role is reflected in the job description for the post.<sup>112</sup>

Indemnity providers currently require a declaration of activity as a pharmacist prescriber and a description of the scope of practice.

In terms of liability, the definition of independent prescribing (p. 42), is important as it is likely that a lot of weight will be attached to this when courts have to decide whether independent prescribers are meeting standards.<sup>113</sup> At a non-medical prescribing conference held in May 2006 a solicitor (Alison Gulliver) warned of the key exposure areas for independent non-medical prescribers:<sup>113</sup>

- Failing to make an adequate assessment of the patient
- Failing to make the right diagnosis
- Failing to prescribe the appropriate medicine
- Failing to monitor adequately (e.g. pick up an adverse drug reaction or deterioration of a condition)
- Prescribing outside of their authority

Ms Gulliver stated that: “With added clinical responsibility comes an increased risk of liability. The question is whose standards are independent prescribers going to be judged by when carrying out extended responsibilities? My instinct is that the standards will be the same as those of doctors who have been fulfilling the same role. Another issue for independent prescribers is the expectations of them if confronted by signs and symptoms that are obvious but that do not fall within their area of expertise”.<sup>113</sup>

Ms Gulliver also stated that the key areas that non-medical prescribers need to check are:

- Their employment contract- does it stipulate prescribing as an activity in the contract? Who will be responsible if a claim is made?
- Ensure that clinical governance arrangements at the organisation are robust, that there are audits, risk management plans and CPD arrangements in place.
- Ensure you adhere to available guidance and use electronic prescribing systems where possible.

- Ensure that your patients are aware that you are a non-medical prescriber and of the limits of your prescribing, and note that you have told them this.
- Ensure you keep extensive records and good notes about your consultations, including differential diagnoses that have been excluded.<sup>113</sup>

So, what is the legal position if a supplementary prescriber prescribes outside the Clinical Management Plan?

If a supplementary prescriber prescribes a Prescription Only Medicine (POM) outside a Clinical Management Plan they will be acting illegally under the terms of the POM Order, and could be subject to sanctions under the Medicines Act 1968.

If something other than a POM is involved, supplementary prescribers have a dual accountability:

- to their employer
- to their statutory regulatory body, the Nursing and Midwifery Council (NMC) or the Royal Pharmaceutical Society of Great Britain (RPSGB).

A supplementary prescriber who prescribes a non-POM without the agreement of a Clinical Management Plan could potentially be subject both to:

- disciplinary proceedings by their employer
- action by the regulatory body should a charge of professional misconduct follow.<sup>114</sup>

### **1.8.7 The theme of risk in this research.**

Clinical governance is an extremely important aspect of prescribing. As prescribing is such a high risk activity, it is clear that the impact of risk upon the development of non-medical prescribing is an important aspect to consider in terms of different healthcare professionals opinion's (doctors, pharmacists and nurses) and the end-user

of the service, i.e. the patient if it is going to be implemented and utilised fully. The research that was undertaken during this thesis was divided into three separate studies as follows;

As shown in the timeline of research Table below (Table 1 p 54-55) when this research started, no legal model of prescribing was available for non-medical prescribing (2001). However, as discussed earlier, there were anecdotal reports that certain prescribing roles were being undertaken by pharmacists within secondary care, predominantly the role of discharge prescription writing (see p 45). Given the importance of clinical governance in the role of prescribing, information about clinical governance aspects of the prescribing activities being provided in secondary care were sought (via a questionnaire survey), such as training provision, audit and how prescriptions that were being written by pharmacists were being authorised. This represents the first study in this thesis. This information was going to be used to provide a baseline of what prescribing was being undertaken in secondary care and to investigate whether aspects of clinical governance were being adhered to.

When the introduction of supplementary prescribing was being consulted upon (2002), it became clear from the output of the consultation, from anecdotal discussions with colleagues and from discussion in the press that there were concerns about this development. Therefore a second questionnaire survey was also used to collate clinical governance data upon the views of chief pharmacists and primary care pharmacists of some of the risks and concerns surrounding supplementary prescribing. This represents the second study in this thesis.

Finally, qualitative interviews were undertaken with patients in order to enquire about their perceived concerns and risks regarding the development of independent prescribing by nurses and pharmacists. This represents the third study in this thesis.

## TIMELINE OF RESEARCH

Published consultations, legislation, announcements and associated documents available at time of research project development	Timing of Research
<ul style="list-style-type: none"> <li>• Review of Prescribing, Supply and Administration of Medicines Final Report –March 1999<sup>11</sup></li> <li>• Pharmacy in the Future- Implementing the NHS plan (Sept 2000)<sup>46</sup></li> <li>• The Health and Social Care Act (May) 2001<sup>47</sup></li> </ul>	<p><b>AUGUST 2001</b></p> <p>First questionnaire is distributed:</p> <p><i>Pharmaceutical input to the discharge process. A survey of Hospital Pharmacy Services.</i></p>
<ul style="list-style-type: none"> <li>• A spoonful of sugar- Medicines management in NHS hospitals (Dec 2001)<sup>49</sup></li> <li>• MLX284- Proposals for supplementary prescribing by nurses and pharmacists and proposed amendments to the prescription only medicines (human) order 1997 (April 2002)<sup>15</sup></li> <li>• The Royal Pharmaceutical Society of Great Britain Pharmacist Prescribing Task Group, First Report, Supplementary prescribing by pharmacists (July 2002)<sup>52</sup></li> <li>• November 2002- Announcement that SP will be legalized.</li> <li>• Spring 2003: SP training starts</li> <li>• March 2004: First pharmacist SP prescription is written.</li> </ul>	<p><b>MAY 2004</b></p> <p>Second questionnaire is distributed:</p> <p><i>A survey of chief pharmacists/ primary care trust pharmacist's views upon supplementary prescribing by nurses and pharmacists in England.</i></p>

**Table 1: Timeline of Research**

Published consultations, legislation, announcements and associated documents available at time of research project development	Timing of Research
<ul style="list-style-type: none"> <li>• Consultation on proposals to introduce independent prescribing (IP) by pharmacists (MLX 321) (2<sup>nd</sup> March 2005-25<sup>th</sup> May 2005)<sup>55</sup></li> <li>• Nurse and pharmacist prescribing powers extended- press release 10<sup>th</sup> November 2005<sup>45</sup></li> </ul>	<p><b>JANUARY-AUGUST 2006</b></p> <p>Patient interviews take place:</p> <p><i>Patient's perceptions of pharmacists and nurses as independent prescribers within primary and secondary care</i></p>

**Table 1: Timeline of Research cont.**



## **CHAPTER 2: LITERATURE REVIEW**

### **2.1 SEARCH STRATEGY**

Various databases have been used for the literature search: Medline, Embase, Healthstar, Pharmline, Ingenta journals, Web of Science, Cumulative Index to Nursing and Allied Health Literature (CINAHL), cited reference search and Bath University Library Catalogue.

For the three studies, a total of 634 references have been retrieved to date.

The following Table (Table 2) presents the search strategy used, a summary of the findings and what types of research were included in the literature review.

**Table 2: Literature search strategy and outcomes**

Study	Search terms used	Outcomes
<b>First study-</b> discharge prescription prescribing	discharge planning pharmacist discharge liaison discharge medication primary care secondary care communication GP communication discharge, pharmacist discharge summary discharge prescription <i>Terms used singly and in combination</i>	Research upon pharmacist prescribing tends to be of a poor quality and consisted mainly of pilot studies. There has only been one randomised controlled trial published in this area, which has its limitations. <sup>75</sup> The majority of the studies that were reviewed were either non-controlled or before and after studies which have various weaknesses in their methodology and hence generalisability of the results. Further good quality research involving multiple sites is necessary to prove whether there are any benefits to this role extension and that it is at least as safe as prescribing being undertaken by doctors.
<b>First study-</b> Other types of pharmacist prescribing	Pharmacist, pharmacist-managed, anticoagulant clinic, warfarin, cost-effectiveness, patient satisfaction, economic, clinical pharmacist, diabetes, heart failure, cardiac, gynaecology, pre-admission, clinics, lipid clinic, hypertension, epilepsy, Prescription amendment, therapeutic substitution. <i>Terms used singly and in combination</i>	
<b>Second study-</b> Nurse literature	supplementary prescribing prescriber, prescription, advanced practitioner, specialist nurse, independent, non-medical <i>Terms used singly and in combination</i>	For the search of nursing literature, a wide range of literature was found which tended to consist of mainly surveys and interviews with patients and nurses themselves to establish their views and opinions on the services being provided. Some of these studies were methodologically flawed. No published work could be found which evaluates the clinical outcomes and appropriateness of the nurse recommendations, or evaluates the safety of their services. Limited evaluation of economic cost-effectiveness suggests comparable costs of those services provided by GPs. A lot of literature that was found tended to consist of commentary, review and reflection upon nurse prescribing as opposed to being primary research studies, such literature was excluded from the review.

Study	Search terms used	Outcomes
<b>Second study-</b> Pharmacist and general supplementary prescribing literature	pharmacist supplementary prescribing prescriber, prescription, non-medical <i>Terms used singly and in combination</i>	As supplementary prescribing was only just starting to be practised in 2004 when the questionnaire survey was developed, there was very little literature found about supplementary prescribing for pharmacists. It tended to consist of commentary from people who were running or undertaking supplementary prescribing courses and documents about implementation of supplementary prescribing, as would be expected with such a new development.
<b>Third Study</b> Independent prescribing	independent prescribing pharmacist prescribing prescription <i>Terms used singly and in combination</i>	Very little literature was found and it was all commentary as opposed to primary research studies. A literature review was also conducted in order to investigate qualitative methodology. General texts upon qualitative methodology were read on the techniques of Interpretative Phenomological Analysis (IPA) and grounded theory to establish which qualitative methodology would be the most appropriate for the final research project. Guidance was also sought from colleagues who were experienced in the field of qualitative research.

## **2.2 EVALUATION OF NURSE PRESCRIBING RESEARCH**

Literature review of nurse prescribing has found research that has been published in the following areas:

### **2.2.1 Perceptions held towards nurse prescribing by patients**

In 1997, Luker et al<sup>115</sup> undertook an early qualitative evaluation of the first eight nurse prescribing pilot sites in England where the nurses were prescribing from the Nurse Prescribers Formulary. The evaluation investigated one GP practice in each regional health authority. Interviews were held with a convenience sample of patients prior to nurse prescribing implementation (n=157) and with patients following implementation (n=148). One third of the patients interviewed post-prescribing had also been interviewed pre-prescribing. The patients viewed nurse prescribing as a success. Patients received treatment more promptly and found the service more convenient, especially with regards to prescribing by health visitors. In some cases the patients felt that the nurses were in an even better position to prescribe for them than the doctors. Few disadvantages were noted and when they did occur, appeared to be related to the fact that nurses had previously helped patients by bringing them their dispensed medications from the local pharmacy, whereas now they were left with a prescription by the nurse to go and get the medication themselves. Problems such as the nurse being limited to a formulary did not appear to cause misunderstandings with patients as to what a nurse could and couldn't prescribe. None of the patients interviewed after the introduction of nurse prescribing were opposed to it and only a small number (7%) appeared neutral or did not express an opinion. The patients thought that the nurses' prescribing ability was linked to the qualities of individual nurses. Patients could distinguish between nurses with different levels of experience or training. The patients felt that only experienced nurses should be prescribing. Interestingly, they found that patient's positive evaluations of nurse prescribing were related to aspects of the nurse-patient relationship. These included the length of the relationship and regularity of contact, approachability, the nurses' style of consultation and information provision within the consultation and the expertise of nurses in certain areas such as skin and wound care.<sup>115</sup>

It is interesting that for the patients, their view of this system being a success was expressed mainly in terms of the increased timeliness and convenience. It would appear that clinical outcomes such as risk and safety were not seen to be an issue by patients in this study, which should be further explored. It is unclear in this paper as to whether all of the patients interviewed actually experienced nurse prescribing. Neither is it clear in the results what the views were (or how they changed) from pre-prescribing to post-prescribing. The sampling methodology is also unclear as it states that only a third of patients who had been interviewed pre-prescribing were also interviewed post-prescribing, but does not state how the rest of the sample post-prescribing is actually derived. The method of analysis of the transcripts from the interviews is also not stated in the paper. There may also be some bias in the results as it is not clear whether the patients knew that they were being interviewed by a nurse about nurse prescribing.

A further publication from this study focused upon the patient's experience with the nurse prescriber compared to a GP. The continuity of care and a stable relationship with the nurse, rather than the GP, was raised by a number of patients and this was considered to be an advantage when the nurse was prescribing. The expertise of nurses in certain areas, such as skin and wound care was also highlighted. When distinguishing between the nurse and GP's role, patients were more likely to cite convenience as the reason for seeking advice from the nurse rather than the GP. Nurses were also found to be more accessible than GPs and patients did not want to waste GPs time with minor conditions. Nurse prescribing was seen as alleviating the GP of more routine duties. In general, nurses were considered to have more time than the GP and more likely to listen to concerns raised by patients. This relaxed attitude at consultation is due in part, to the long-term relationship which often exists between nurses and patients.<sup>116</sup>

Brooks et al undertook a series of qualitative interviews (during May to September 2000), with patients (n=50) who had experienced nurse prescribing in one primary care trust in Leicestershire. This involved health visitors, district nurses and practice nurses (who were all experienced prescribers) recruiting five patients for whom they had recently prescribed. The participants ranged from mothers of under 5's who were in their 20's and 30's to older people in their 80's. All were white and spoke English as their first language. The researchers found that nurse prescribers were, in the main,

meeting the needs of participants with positive experiences identified in terms of the prescribing process and the outcome. These included the patients perceiving that nurse prescribing demonstrated more effective use of the GP's and nurses' time, that nurses know their professional limitations and when they need to refer the patient to a doctor, the expertise of nurse prescribers in certain types of care, the improved timeliness and convenience of nurse prescribing and that nurse prescribing was based upon an established nurse-patient relationship and this relationship allowed for an improved continuity of care. Limitations of nurse prescribing that were perceived by patients included the training and competency of nurse prescribers and the limitations of the nurse prescriber's formulary. Suggestions made by participants for the future development of nurse prescribing included the need for education to maintain public safety and develop and maintain competence, the potential for the NPF to be expanded and the need to provide patient-centred services and renegotiate traditional roles so that the NHS workforce is used more effectively.<sup>117</sup>

However, this study had a methodological flaw of the nurses themselves choosing and approaching their own patients for recruitment, which could lead to coercion and it may have lead to positive bias from the patients about the service. It is also not clear whether the nurses recruiting patients were following any kind of recruitment criteria or whether they were choosing patients with no guidance which again could lead to a positive bias as they may have chosen patients that they got on well with.

In September 2004 Berry et al undertook a self-completed questionnaire survey of the general public (a convenience sample, recruited from a waiting area at a London railway station n=74) to assess the views of people who had not yet experienced nurse prescribing, to determine their level of confidence in nurse supplementary prescribing as opposed to doctor prescribing, effects on likely adherence and concerns that they might have. Generally, participants felt that they would have confidence in the nurse having prescribed the best medicine and said that they would be very likely to take the medicine. Concerns identified did not specifically relate to the nurses' status when compared to a doctor. Only 5 participants stated that they preferred to see a doctor or to see a doctor before the nurse. Another participant wanted to be checked by a doctor at regular intervals and two others questioned the nurses' knowledge/competence.<sup>118</sup> This is a more exploratory study and hence the findings are not generalisable and are thus indications of the publics' attitudes.

The shortcomings of this study are that they did not use a random selection of people and instead used a convenience sample, and also the participants had no experience of nurse prescribing. The authors also state that in the initial verbal description of the study during recruitment, participants were positively biased by the description of the purpose of the study (whether participants would be willing to take part in a study looking at how best to support nurses in relation to nurse prescribing) although they dismiss how much this would have biased participants as they had to read more detailed guidance in an information sheet before participating.

In 2004, Latter et al<sup>119</sup> undertook a study to investigate whether nurses were practising the principles of concordance within their prescribing interactions (the nurses were independent nurse prescribers), in the nurses' and patient's opinion via postal questionnaires and observation of practice. Most nurses believed that they were practising concordance in their prescribing consultations and the majority of patients also reported experiencing concordance in practice. However, observation of practice highlighted that the shift from a professionally determined compliance agenda to the integration of concordance into nurses' prescribing consultations had not yet taken place. In particular, nurses were not always giving patient's information about possible side-effects of the medicines they were prescribing, nor giving explanations about risks and benefits of treatment options or assisting patients in making informed choices about the management of their health problems.

A positive bias may have been present in this study as patients who had their consultation with the nurse observed, then completed a post-consultation questionnaire and may have therefore felt some obligation to be positive about their experience. Also some nurses who had been observed in their consultations were also involved in purposively sampling their patients to post questionnaires to.

So, in the limited amount of research into patients' opinions of nurses as prescribers, the overwhelming opinion is that patients are happy with nurses in this role, and it is only a minority that have some concerns about it. However, patients can see the many advantages of the system. However, all of these studies have some methodological flaws and positive bias associated with them.

It is interesting that patients did not express concerns in terms of clinical outcomes or competence yet the observational study did highlight that there were flaws within

nurse consultations. Therefore it could be suggested that the public do not know what they should be looking for in a good consultation or prescriber anyway.

### **2.2.2 Perceptions and quantification of nurse prescribing by nurses and other healthcare professionals**

A review of the literature upon the effectiveness of nurse prescribing was undertaken (1993-2002) in the UK by Latter and Courtenay.<sup>25</sup> They included 18 research-based publications in the review and found that patients were generally satisfied with district nurses' and health visitors' prescribing in the first phase of nurse prescribing. The nurses themselves were also generally satisfied with the role, although some concerns about the adequacy of their pharmacological knowledge were raised. The limitations of the Nurse Prescriber's Formulary were also raised. They identified that some nurse prescribing outcomes remain unevaluated, such as its impact on the prescribing practices of doctors and the perspectives of certain patient groups. The authors concluded that the majority of studies are limited to self-report designs with limited "generalisability" of research findings to the myriad of practice settings.<sup>25</sup>

In 2001 Luker et al<sup>120</sup> undertook a postal survey of 164 community nurses who were qualified to prescribe independently from the Nurse Prescriber's Formulary in order to investigate patterns of prescribing in three primary care trusts (PCTs) in the United Kingdom (UK). Although they received 129 (79%) responses, 35 nurses identified themselves as not actually actively prescribing (even though they had the qualification). Hence 93 (72%) questionnaires were analysed in the results. They found that prescribing costs ranged from £7.65 to £18,053 (median £2,023.64) for district nurses and £0.73 to £2,556 (median £42.77) for health visitors over a twelve month period. Nineteen per cent (n=28) of community nurses had decided not to prescribe even though they were trained to do so (the reasoning for this was not stated in the paper). Nurses perceived that their ability to prescribe was benefiting their patients and that they are providing better care.

The authors comment that action is needed by PCTs to put structures into place to ensure that nurses take on board the further extension to nurse prescribing given that a quarter of nurses in their survey were not using their prescribing skills.



In 2002 a questionnaire survey was conducted of all health visitors and district nurses working in three trusts in southern England, with a 74% (n=91) response rate achieved.<sup>27</sup> Most respondents prescribed for less than three patients per week, with district nurses prescribing significantly more than health visitors. Over two-thirds of the sample found nurse prescribing at least moderately helpful to their professional role and over four-fifths reported that they are more than moderately confident nurse prescribers. Over two-thirds of the sample found that the NPF did not cover their prescribing needs and most respondents said that their general practitioner team was at least moderately supportive of their prescribing role.

In 2003 to 2004 Bradley et al<sup>121</sup> undertook a self-report questionnaire of nurses who had completed an extended/supplementary prescribing course at one university in the West Midlands in order to gather data on demographics, expectations of nurse prescribing, personal and professional development and perceived education needs. They found that respondents thought that despite initial problems, the nurse prescribing initiative would ultimately prove to be a cornerstone of improved service delivery for service users. The majority of nurses were heavily involved in prescribing “by proxy” and the course merely formalized what they were currently doing. Some concerns were expressed about how supportive the current health climate in health care could be, given the multiple demands on time and energy required by so many other innovations.

The authors conclude that the respondents were not indifferent to the many short and long-term problems that need to be resolved before it can be claimed to have become embedded in practice. They also suggest that the success of non-medical prescribing may depend on organizational support, coupled with a robust continuing professional development strategy for all nurse prescribers.

In June 2005 an evaluation of extended formulary independent nurse prescribing was published.<sup>122</sup> This study consisted of two phases. First of all a national survey of nurse prescribers (n=246) was undertaken and then an in-depth evaluation of ten case studies of practice settings in which nurse prescribers were working involving observation of their practice and investigating the views of a range of stakeholders in local practice contexts. The authors found that nurses were prescribing frequently and clinically appropriately in a range of practice settings. Clinical appropriateness was

judged by a sample of observed nurse prescribing consultations being sent to a panel of medical prescribing experts. The expansion of independent prescribing was largely viewed by nurses, patients and doctors who participated in the study as successful on a range of policy and practice dimensions.

Finally, in January to February 2005, a questionnaire survey was sent out to a convenience sample of 1187 qualified independent extended/supplementary nurse prescribers, and 868 (73%) completed questionnaires were returned.<sup>123</sup> The authors found that independent extended/supplementary nurse prescribers work predominantly in primary care and do prescribe medicines. These nurses are highly qualified and have many years of clinical experience (87.6% had >10 years post registration experience). Supplementary prescribing is used by a minority of nurses. Implementing the CMP was found to be a barrier preventing the use of this mode of prescribing, although detail upon this identified barrier was not established in the study. They also found that the continuing professional development needs of independent extended/supplementary nurse prescribers are frequently unmet. 32% of the sample was unable to access CPD but again further examination of this issue was not undertaken during the study.

The limitations of this study are that as all qualified independent extended/supplementary nurse prescribers were sent the questionnaire, so it was not a random sample. A second limitation is that the length of time that participants had been prescribing was not taken into account which may have affected the responses.

### **2.2.3 Differences in care provision between nurse practitioners and GPs**

In 1999, Kinnersley et al<sup>124</sup> undertook a randomised controlled trial in order to ascertain any differences between care provided by nurse practitioners and GPs for patients seeking “same day” consultations in primary care in 10 general practices in south Wales and south-west England. Practices chose to randomise patients either by day or within the same day. The randomisation schemes used were supplied to them. 1368 patients were recruited into the study and main outcomes measured were patient satisfaction, resolution of symptoms and concerns, care provided (prescriptions, investigations, referrals, recall and length of consultation), information provided to patients and patient’s intentions for seeking care in the future. These measures were

measured via two questionnaires- one administered during the consultation and one after the consultation about consultation satisfaction. Nurse practitioners would have been prescribing from the NPF<sup>9</sup> as independent prescribers. Ten GP practices participated in the study, and n=716 patients were seen by a general practitioner and n=652 by a nurse practitioner.

Generally, patients consulting nurse practitioners were significantly more satisfied with their care, although for adults this difference was not observed in all practices. Resolution of symptoms and concerns did not differ between the two groups. The number of prescriptions issued, investigations ordered, referrals to secondary care, and re-attendances were similar between the two groups. However, patients managed by nurse practitioners reported receiving significantly more information about their illnesses and, in all but one practice, their consultations were significantly longer. The authors conclude that the study results support the wider acceptance of the role of nurse practitioners in providing care to patients requesting same day consultations.

A systematic review was undertaken in 2002<sup>125</sup> to determine whether nurse practitioners working in primary care can provide equivalent care to doctors. This review had similar findings to the above study. This study also found that patients were more satisfied with care by a nurse practitioner, that they had longer consultations and made more investigations than doctors. No differences were found in prescriptions, return consultations or referrals. The authors conclude that there was no difference in health outcomes and that nurse practitioners in primary care were providing high quality care. This study does not clearly define what they mean by “equivalent” care and states that although all of the randomised trials found no significant differences between the doctors and nurse practitioners in health outcomes, the studies included used many different outcome measures, which reflects the difficulties in measuring changes in health outcomes after single consultations predominantly about minor illnesses.

#### **2.2.4 Cost-effectiveness of nurse prescribing compared to GPs**

Only one study could be found where the cost-effectiveness of nurse prescribing in the UK has been evaluated. Venning et al<sup>126</sup> undertook a multi-centre randomised controlled trial of patients requesting an appointment on the same day across 20 GP practices in England and Wales. 651 general practitioner consultations and 641 nurse

practitioner consultations were compared in terms of length of consultation, examinations, prescriptions, referrals, patient satisfaction, health status, return visits over two weeks and costs. Costs were analysed in terms of the basic salary costs, costs of prescriptions, tests, referrals and the cost of return consultations in the following two weeks. The nurse practitioners prescribed from the NPF<sup>9</sup> as independent prescribers.

It was found that nurse practitioner consultations were significantly longer than those of general practitioners, nurses carried out more tests and asked patients to return more often. There was no significant difference in patterns of prescribing or health status outcome for the two groups. Patients were more satisfied with the nurse practitioner consultations even when length of consultation was controlled for. There was no significant difference in health service costs. The authors state that the nurses were paid less than the doctors, but as they took longer to see patients and more of their patients returned for further consultations the cost savings were cancelled out. The authors conclude that if nurse practitioners were able to maintain the benefits while reducing their return consultation rate or shortening consultation times, they could be more cost effective than general practitioners.

In the systematic review discussed earlier,<sup>125</sup> the authors also investigated economic analyses of the costs of care by nurses compared with doctors. They found five studies which provided data about costs. However, these studies used different approaches to the valuing of resources and were inadequately powered for economic analysis.

Therefore evaluation of nurse prescribing has tended to consist of in the main, surveys and interviews with patients and nurses themselves to establish their views and opinions on the services being provided. There has not been any research undertaken which evaluates the clinical outcomes and appropriateness of the nurse recommendations, or evaluates the safety of their services. Limited evaluation of economic cost-effectiveness suggests comparable costs of those services provided by GPs, however the lack of good evidence about the economic impact of substituting nurse practitioners for doctors needs to be addressed in future research, otherwise changes may be introduced which are inefficient. As non-medical prescribing is in its

infancy, it would be expected that further research for this type of nurse prescribing will be forthcoming.

Hence there is a big gap in the evaluation of nurse prescribing whilst further extension of prescribing rights continues. It is possible that the government's agenda for continuing to extend non-medical prescribing at such a fast rate has hindered research.

### **2.2.5 Nurse prescribing experience from other countries**

Development of nurse prescribing in the UK parallels practice issues in other countries such as USA, New Zealand, Canada, Australia and Sweden, which have implemented independent nurse prescribing rights to varying degrees.<sup>127</sup> In the USA, advanced practice nurses (these include nurse practitioners, nurse midwives, nurse anesthetists and clinical nurse specialists who are registered nurses with advanced skills and knowledge, usually with a master's degree in nursing) are able to prescribe medications in all 50 states.<sup>128</sup> In 27 of these 50 states the nurse prescribing is independent, where there are no requirements for written agreements. In the other 23 states, the prescriptive authority is linked to a collaborative agreement with a physician. However, advanced practice nurses are working towards independent prescribing status in all 50 states.<sup>128</sup>

In Canada and several states of Australia, support for nurse prescribing has been primarily in rural areas where there are a shortage of doctors, and nurses work independently.<sup>127</sup>

In New Zealand, the Government has changed (April 2004) their regulations to allow advanced nurses (these have a master's degree and at least 4-5 year's experience in a specialist area) to extend their prescribing rights to allow them to prescribe all prescription, pharmacy-only, restricted and general sale medicines within their scope of practice.<sup>129</sup>

In Europe, Sweden was innovative in its development of nurse prescribing rights in 1994, when they gave their district nurses with post-graduate qualifications a list of drugs that they could prescribe for specific conditions.<sup>130</sup>

The introduction of this role for Swedish nurses was to enable patients living in remote areas access to medicines and also to reduce the workload of doctors.<sup>127</sup>

Although prescribing training is available to nurses in Botswana and South Africa, there is an absence of literature with regards to its implementation or evaluation.<sup>127</sup>

Experience from countries such as this was drawn upon when the Crown Review was undertaken,<sup>11</sup> and this has aided the development of non-medical prescribing in the UK.

## **2.6 HOW THIS LITERATURE REVIEW HAS HELPED TO DEVELOP THE RESEARCH INTO NURSE PRESCRIBING (phase 2 and 3).**

As supplementary prescribing was introduced in 2003, published research upon this new model of prescribing could not be found in nursing journals when phase two of this research was being developed in 2004. This would be as expected for such a new development. However, being aware of the other legal forms of nurse prescribing (independent and extended formulary prescribing) that led up to the development of supplementary prescribing and what impact they were having was essential to understand how supplementary prescribing was fitting into their practice.

It was therefore clear that in terms of the new development of supplementary prescribing for nurses, provision of baseline data upon implementation of SP within primary and secondary care by nurses and in which clinical areas they were intending to practice was important to establish. This was also important as pharmacists were also going to be starting their role as prescribers and it would be important to establish whether nurses and pharmacists were setting up their clinics in similar areas or whether their different skills led them towards niche clinics which were most suited to their abilities.

The literature reviewed also highlighted what patients thought about nurses in their independent and extended formulary prescribing roles. The literature showed that patients were very positive about nurse as prescribers and quantified this in terms of its convenience and timeliness as opposed to the clinical appropriateness and effectiveness. Risk, safety and competence did not seem to be issues of concern for patients. Patients had such trusting relationships with nurses due to their stable and long-standing relationships with them.

Therefore as Independent Prescribing (An extension from the limited NPF for nurses so they could prescribe ALL licensed medicines (except for controlled drugs until 2007)) for nurses and pharmacists was due to be legalized in 2006, it seemed that a study was necessary in order to establish what patients thought about the impending

legalization of Independent Prescribing especially in terms of their concerns and safety of the system.

The literature review also informed that although there had been some research undertaken comparing nurses consultations to that of doctors, there needed to be some investigation of what patients thought of nurses compared to pharmacists. Pharmacists had more recently been allowed to prescribe as supplementary prescribers, and further prescribing rights were due to be given as Independent Prescribers. The literature showed that there was acceptance by the public of nurses as prescribers when compared to doctors and that they were satisfied with their care. Therefore for the final research study patient's opinions of pharmacists and nurses as independent prescribers was investigated, especially whom patients are most comfortable with and why. Also their concerns regarding independent prescribing will be investigated.

## **2.7 EVALUATION OF PHARMACIST PRESCRIBING RESEARCH**

A review of the research evidence surrounding pharmacist prescribing is followed by exploration of the legal issues surrounding pharmacists prescribing and a discussion of the development of the pharmacist's role as a prescriber in USA and the rest of the world. This review was first undertaken during 2001 when the PhD was started. Since then, the literature available in this area has increased substantially. Therefore this review has been updated to include some research that is pertinent to the development of pharmacist research that has been published since 2001 as well. Where papers are being discussed that were published after 2001, this will be highlighted. Literature has been included from all over the world, but has focused where possible on UK research.

A literature review upon the area of pharmacist prescribing has elicited the following areas in which types of pharmacist prescribing has been reported:

- Anticoagulation
- Specialist clinics (Primary and Secondary care)
- Writing discharge prescriptions (Secondary care)
- Prescription amendment/therapeutic substitution (Secondary Care)

These areas of prescribing or “pseudo-prescribing” (depending on who actually signs the prescriptions produced) developed without a legal model being available (before the introduction of supplementary prescribing in 2003) for the pharmacist to prescribe in these scenarios. It is worth examining these areas to establish what has been learnt regarding pharmacist prescribing in terms of the outcomes such as its efficacy, safety, cost effectiveness and patient/doctor acceptability.

### **2.7.1 Anticoagulation**

This is the therapeutic area that has the largest body of research to support it, and has been reported to occur as early as 1979 in USA,<sup>131</sup> and 1985 in the UK.<sup>132</sup> Of the



articles retrieved, the majority are American (n=32), with one Canadian article, and 15 from the UK.

Pharmacist prescribing within this area has been reported in the following settings: primary care clinics,<sup>85, 87, 133-135</sup> in-patients<sup>90-92, 136-144</sup> and mainly at outpatient clinics.<sup>83-86, 88-89, 135, 145-159</sup>

Several of the papers have either been audits of a service provided<sup>87-88, 92, 152, 158</sup> or descriptions of the service provided.<sup>89, 135, 153</sup>

The research has provided evidence that pharmacists can act as anticoagulant prescribers via the following outcome measures:

#### 2.7.1.1 Pharmacists successfully manage anticoagulation at least as effectively as doctors

In order to measure this, several different endpoints have been used; time spent or percentage of patients within the target range, deviation from the target range, time spent or percentage of patients outside of target range.

The most commonly reported method for examining anticoagulant control has been to assess the percentage of International Normalised Ratio's (INR) within range.

The majority of studies are non-randomised controlled studies or a comparison of care before and after a new pharmacist-led service has been put into place.

There have been some papers that have compared the pharmacist service against the standard medical care for both in-patient<sup>90, 136-137, 139-142, 144</sup> and out-patient management.<sup>83-84, 145-147, 157</sup>

In a UK non-randomised study based in five wards in Brighton General Hospital<sup>144</sup> in 2004, two wards were under pharmacist control of warfarin dosing and three wards remained under the care of the doctors. Data was collected for 11 months and a total of 33 patients were recruited into each arm. Pharmacists prescribed more appropriate loading and maintenance dosing according to protocols compared to doctors, which resulted in more patients reaching their target INR sooner. Documentation of indication, duration of treatment and target INR was also much improved compared to medical staff. However, more patients (73%, n=22/30) in the doctor's group were within range on discharge and at the out-patient clinic (79%, n=19/24) compared to the pharmacists (68%, n=19/28 and 61%, n=13/21 respectively). Significantly fewer patients dosed by pharmacists had episodes of over or under-coagulation (91%,

n=30/33 vs 67%, n=22/33) ( $F(1,64) = 6.17, p=0.016$ ) and fewer INR tests were requested (2.3/patient/week) compared to those dosed by doctors (2.7) (no statistics were quoted as to whether this difference was statistically significant). Patients under the control of pharmacists also had fewer adverse events (6%, n=2/33 vs 12%, n=4/33). Therefore it appeared that pharmacist dosing of warfarin for in-patients had a beneficial effect on most aspects of anticoagulation control which provides some evidence to support this extended role. However, it should be noted that the numbers of patients recruited into this study was poor as only 33 patients were recruited into each arm of the study over a period of 11 months. Further recruitment of patients may have allowed more explanation of why doctors managed to get patients into range more often on discharge and in out-patients than pharmacists did.

This study also does not state who judged the appropriateness of the prescribing and whether there was any analysis of why the protocol was not adhered to in such cases.

There is only one study (USA) that could be found which is a randomised controlled study (RCT),<sup>160</sup> where the management of anticoagulant therapy for hospitalized patients by seven certified pharmacist prescribers and one physician was compared. Eighty-one consecutive patients referred to the anticoagulation service were randomly assigned to two groups. For patients in the pharmacist-prescriber group, the physician independently monitored laboratory results and recorded heparin and warfarin doses that he would choose to administer, whilst the doses that the pharmacist chose to give were administered to the patient. The roles of pharmacist and physician were reversed for patients in the physician-prescriber group. There were no significant differences in the mean heparin and warfarin doses administered to patients in the two prescribed groups. The authors concluded that while the results are not applicable to all pharmacists or all settings, the certified pharmacist prescribers in this study adjusted anticoagulant therapy as well as an experienced physician.

More recent studies have been able to provide evidence that pharmacist-managed anticoagulation clinics are effective over a longer period of time. Willey et al<sup>158</sup> (2003) (USA) found that amongst patients that attended a pharmacist-managed anticoagulation clinic over the six-year period from when it first started that an estimated 40-60% of International Normalised Ratio (INR)s were within the targeted range, a frequency which is consistent with that achieved by non-pharmacist managed clinics.

### 2.7.1.2 Pharmacist anticoagulant services are safer than usual care

To examine this aspect of care, bleeding complications and the safety of the therapy have been examined. This has been measured by numerous endpoints including, INR>6, sub-therapeutic INR, bleeding rates, readmission due to bleeding and incidence of sub-therapeutic and supra-therapeutic events.

Chiquette et al (USA) compared newly anticoagulated patients who were treated with usual medical care (n=183) with those treated at a pharmacist-led anticoagulant clinic (n=145). They reported that the pharmacist group had lower rates (%/patient year) of significant bleeding (8.1% n=9.9 patient yrs vs 35%, n=36 patient yrs), major to fatal bleeding (1.6%, n=1.9 patient yrs vs 3.9%, n=3.9 patient yrs), and thromboembolic events (3.3%, n=4.1 patient yrs vs 11.8%, n=12.0 patient yrs). The pharmacist-treated group also had a significantly reduced rate of warfarin-related hospitalisations.<sup>145</sup>

Garabedian-Ruffalo et al<sup>149</sup> (USA) describe a before and after study of 26 patients which found that patients whose warfarin dosing was controlled by a specialist clinic ran by pharmacists had a reduced number of hospitalisations (39%, n=10 versus 4%, n=1) when compared to their previous, standard medical care. Also the percentage of prothrombin times outside of the target range were significantly lower (14.4% versus 35.8%). However, this was a small study in terms of numbers of patients but did last for 30 months. Another problem is that the patients acted as their own controls and there was no blinding.

Dager et al<sup>137</sup> (USA) reported a comparison of a historical cohort of in-patients starting warfarin therapy prescribed by doctors versus a prospective cohort matched for treatment indication, on warfarin started by pharmacists. They found that the number of patients and patient-days with INR values>6.0 were reduced by pharmacist dosing from 20 patients and 50 days to 2 patients and 6 days, respectively (p<0.001). The design of this study would have been improved by having an active control group who were also observed prospectively at the same time as the intervention group. There may have been other external factors affecting the intervention group three years after the historical cohort making them non-comparable.

Witt et al<sup>157</sup> (2005) (USA) carried out a retrospective, observational cohort study where they compared a clinical pharmacy anticoagulation service (via the telephone) to standard doctor care. They found that those patients looked after by the clinical pharmacy services were 39% less likely to experience an anticoagulation therapy

related complication when compared to the control group. Additional analyses revealed that improved outcomes associated with the clinical pharmacy service were mediated largely through improved INR control.

This study was not randomised and also the control group was composed of patients from two different settings and from two different time periods which could introduce some bias to the results as one group had paper records and the other had electronic records. It is also not clear whether the authors considered the issue of patient compliance with medication- the telephone service may have induced a “Hawthorn effect” where some people work harder and perform better when they are participants in a study- i.e. they comply with their medication more than usual.

Locke et al<sup>155</sup> (2005) (USA) undertook a retrospective cohort analysis in a 300 bed community hospital where they compared adverse events related to anticoagulation in patients assigned to a pharmacist-managed anticoagulation service versus those receiving usual care. There were more adverse events requiring hospitalisation in the control group (n=14) versus the pharmacist managed group (n=3) (p=0.0153)

However, it should be noted that Rivey et al<sup>140</sup> (USA) found that the only cases of major bleeding occurred in patients being treated by pharmacists following a protocol (n=4/151).

The most significant research to suggest an improved safety for patients receiving pharmacist-managed anticoagulant services when compared to usual care was a retrospective cohort analysis of 717,396 Medicare patients treated in 955 hospitals in USA for conditions requiring anticoagulant therapy.<sup>154</sup> They found that in hospitals without pharmacist-provided warfarin-management, death rates were 6.2% higher (p<0.0001), length of stay was 5.86% higher (p<0.0001), bleeding complications were 8.09% higher (p<0.0001) and the transfusion rate for bleeding complications was 22.49% higher (p<0.0001). The authors state that these findings are significant for the healthcare system considering that the study population represents 28.25% of hospitalized Medicare patients who should receive anticoagulants and that total Medicare admissions represent 35.02% of total admissions to US hospitals. Although the benefits reported in this study were considerable, there was only a 30% (n=1109/3701) response rate from eligible hospitals and the pharmacy-managed cohort comprised just over 10% (97/955 hospitals, 84,219/633,177 patients) of the patients and hospitals analysed. The participating hospitals were not categorized nor were other potential confounding factors discussed (e.g. patient demographics,

availability of specialist physicians)<sup>156</sup> It is not clear whether the differences seen in this study are actually due to the pharmacists themselves. The study design allowed determination of associations and direct relationships between variables but does not allow causality to be determined. Hospitals with pharmacist-led clinics may for instance, be more innovative and hence may have more confident specialists. Therefore further study would be required to see if these results can be replicated.

#### 2.7.1.3 Patient satisfaction with anticoagulant services

In the study discussed earlier by Willey et al<sup>158</sup> (2003) (USA) they also assessed patient satisfaction with the pharmacist-lead anticoagulation service. They sent satisfaction surveys to all 742 patients that had attended the clinic over the six years it had been operational and to 77 referring doctors. This elicited a response rate of n=355 patients (48%) and n=26 doctors (38%). The researchers rated satisfaction with the clinic via a 5-point Likert scale and found that both patients and doctors were very satisfied with the clinic. The patient's greatest complaint about the clinic was the need to travel to the clinic to have a blood sample taken. The doctors stated that they were pleased with the level of care provided by the clinic and also believed that it decreased their workload.

The response rate is poor for this study and the paper gives no information as to how the questionnaire was developed, validated and piloted. The paper states that many returned questionnaires were incomplete which would suggest that the design of the questionnaire had not been thoroughly developed. Therefore the level of confidence that could be attributed to this data would be low.

Lodwick and Sajbel<sup>161</sup> (USA) also assessed the satisfaction of their facilities' pharmacist-managed anticoagulation clinic via a questionnaire sent to their patients and referring doctors. 34/44 patient questionnaires were returned (79%) and 21/41 doctor questionnaires (51.2%). The researchers found that there were high levels of both patient and doctor satisfaction and both groups appeared to be satisfied with the pharmacist's ability to provide accurate and timely information regarding coagulation status. It should be borne in mind that this study had a small sample size and the results are limited to this particular clinic and pharmacist. Also there may be some positive bias as one of the authors actually ran the clinic themselves, so patients and referring doctors may have felt this bias when answering the questionnaires.

Calcagno et al<sup>162</sup> (USA) assessed patient satisfaction with a pharmacist-managed anticoagulant clinic (Response rate: n=156/217, 72%) versus a group of patients who saw their doctor for their warfarin (Response rate: n=66/128, 52%. However n=10/66 only answered the comments section and so the results were not included in the statistical analysis). A significantly higher percentage of clinic patients (pharmacist-managed) were more often “very satisfied” with the items on the survey, and a significantly higher percentage of patients in this group “strongly agreed” that their overall experience was excellent (n=117, 79% vs n=27, 55%). They conclude that traditional warfarin management can be improved by facilitating patient access, providing continuous patient education and offering efficient feedback.

Therefore there is some evidence that indicates patient and doctor acceptance of pharmacists managing anticoagulation. However, the generalisability of these results to the UK and to our health system is doubtful.

#### 2.7.1.4 Pharmacist anticoagulant services are cost-effective

Ten studies were found to have analysed cost-effectiveness of pharmacist-led anticoagulation. However, only two of these are UK studies (the rest are from USA), therefore the studies from USA are not discussed in detail as the results of the American papers are difficult to translate to the UK.

The outcome measures utilised have included reduced total hospital costs, benefit: cost ratio, reduction in heparin costs and tests per 7 days, savings per 100 patients per year, cost avoidance and total costs of hospitalisation.

Macgregor et al<sup>87</sup> described their evaluation of a pharmacist-led anticoagulant clinic set up in a UK GP practice. The authors found that the direct costs to the practice of the clinic, including the cost of the pharmacist, the tests, and the cost of the coagulometer, were less than that charged to fund holders for each hospital appointment. Surgery attendance cost less for 48% of patients and more for 4%. Travelling time was less for 64% and greater for 20%. Most patients lived near the surgery, eliminating the need for an estimated 27 ambulance trips a year. However, these costs would have been made by any healthcare professional running the clinic in this setting. No methodology was reported for calculating these costs savings. Also

the author of the paper ran the clinic herself so there may have been some positive bias in the reporting of the results.

The other UK study (2003) investigated the use of resources and cost implications of stroke prophylaxis with warfarin in non-valvular atrial fibrillation patients referred to a pharmacist-led anticoagulant outpatient service. The participants were interviewed in person at their first visit and then by telephone every 4 to 6 weeks by an investigator. They were asked about bleeding events and extra physician visits, procedures, or hospital admissions related to bleeding. They were also asked about the method and the cost of transportation to the anticoagulation clinic and the costs involved in days of work missed by the patient and caregiver. Costs of warfarin treatment consisted of the following: (1) cost of the drug, (2) cost of monitoring, international normalized ratio, travelling, nurse visits, work missed, postage) and (3) costs associated with complications (i.e., bleeding-related physician visits, hospital admissions, related procedures) admissions and related procedures. A total of 402 patients were included.

The mean cost of warfarin treatment per patient per month was £11.00 (95% CI, 10.2–11.6) in patients with no bleeding and £11.90 (95% CI, 10.30–12.50) in patients with minor bleeding ( $p = \text{NS}$ ). The cost was significantly higher in patients with major bleeding (£299.00; 95% CI, 74.60–538.90;  $P < 0.001$ ). The total cost of warfarin treatment per patient per year was £159.40, and the cost to prevent 1 stroke per year was £5260.20 in 2003.<sup>163</sup> Unfortunately these costs were not compared to usual care via a doctor to determine the cost effectiveness of using a pharmacist.

Anderson<sup>159</sup> (2004) (USA) undertook a retrospective analysis of data from patients who had attended a pharmacist-managed outpatient anticoagulation service with chronic atrial fibrillation (AF). The cost per patient per month was determined ( $n=97$ ) as being \$51.25, distributed as 27% in personnel costs, 36% for lab tests and 37% for anticoagulant drug costs. Unfortunately this study also did not compare costs to usual care via a doctor to determine the cost effectiveness of using a pharmacist.

One study (2005) (USA) did not undertake an economic evaluation of the pharmacist-managed anticoagulation service, but did note that as the control group of patients undergoing usual care accrued 64 more hospital days due to adverse events when compared to the pharmacist-lead care, this would result in costs savings.<sup>155</sup>

The large retrospective cohort study by Bond et al<sup>154</sup> (2004) (USA) did state that Medicare charges were 2.16% higher (\$234,275,490) in hospitals that did not have a pharmacist managed warfarin management service (n=633,177).

A review of published literature (2006) (USA) regarding pharmacist-managed anticoagulation has concluded that with regards to the cost effectiveness of such services, it appears likely that pharmacy-managed services do provide financial advantages over other approaches but is critical of the research published in this area as well. This review states that you cannot extrapolate from small or flawed studies such as those available thus far.<sup>156</sup>

#### 2.7.1.5 Pharmacist anticoagulation improves patient knowledge

There are only 2 articles that could be found that have investigated the effects of counselling by the pharmacist on patient knowledge regarding warfarin therapy. They are both UK research papers.

Macgregor et al<sup>87</sup> reported that they assessed patient knowledge via a questionnaire during their initial visit. Knowledge was then re-assessed after three months to see whether the counselling during the clinic appointments had improved the patient's knowledge. The review did show improved knowledge. However, the study did not state any of the methodology used, or the results. Also, they used patients as their own controls so this does not provide evidence that it is pharmacists per se that have improved the patient's knowledge, but just that by receiving information they have improved their knowledge. Also some bias may have been introduced as it is not clear whether the patient's knew they were going to be assessed at the end of the study and so may have revised.

Radley et al<sup>86</sup> described the establishment and evaluation of a pharmacist-led outpatient anticoagulant service. A counselling standard was incorporated into their clinic documentation, in order to educate the patients. An audit was then undertaken of the effectiveness of their counselling programme. Patient knowledge of diagnosis, warfarin side-effects etc. was audited via an interviewer-administered questionnaire. The questionnaire was piloted amongst 15 patients. 100 patients were then interviewed over a 5 week period with the questionnaire to ascertain their knowledge. Several areas of knowledge were found to be lacking, including the signs of over-



dosage and effects of other illnesses. However, no baseline data is available to ascertain how the patient's knowledge had improved.

In a review of published literature (2006) regarding pharmacist-managed anticoagulant clinics<sup>156</sup> the researchers state that the evidence indicates the efficacy of pharmacy-managed in-hospital anticoagulation and that reported outcomes seem to be at least equal, if not superior to those obtained through standard (doctor) care. There is some suggestion that pharmacy-managed anticoagulation saves money and doctor time, however the quality of the design of these studies is poor. They also state that due to this, the apparent superiority of the pharmacist's results in some studies may be a result of stricter adherence to guidelines and protocols as opposed to anything else. The authors therefore suggest that if this is the case, then the ideal method may not be to rely solely on either doctors or pharmacists but to adopt a multidisciplinary approach.

Overall, as this is the pharmacist prescribing area which has the most substantial body of research to support it, it is encouraging that the performance of the pharmacists in this role has been found to be at least as effective as doctors.

### **2.7.2 Pharmacist-led specialist clinics (non-anticoagulation)**

A total of 55 papers upon pharmacist-led clinics could be found. The majority of the research published is American. Published UK-based clinic descriptions/studies have included the clinical areas of diabetes, psychiatry, heart failure, cardiac, gynaecology and surgical pre-admission clinics. Quite a few of the published papers only describe the service that was provided as opposed to assessing the service provided in a meaningful way.

The clinical areas which provide the most publications are for lipid clinics, hypertension clinics and diabetic clinics.

#### **2.7.2.1 Pharmacists prescribe at least as effectively as other health care professionals**

Twelve articles could be found about the role of the prescribing pharmacist in a lipid clinic. Effectiveness was based upon changes in lipid parameters. Six of these papers compared the lipid control by the pharmacist to that of a medic.

Bozovich et al<sup>164</sup> (USA) compared the care of one group of patients with coronary heart disease who were treated in a pharmacist-managed lipid clinic (n=104), to a group of control patients with coronary heart disease who were provided with usual care via a cardiologist (n=101). A clinical protocol was drawn up by the pharmacist and agreed by a cardiologist (different from the cardiologist looking after the control group). The protocol aimed to reach National Cholesterol Education Program low-density lipoprotein (LDL) goals.

The patients were followed for at least 6 months. At the end of 6 months, 69% (72/104) of patients in the pharmacist-managed group achieved their LDL goal opposed to 50% (36/72) in the control group ( $p=0.016$ ). Compliance with laboratory tests and also medication compliance improved in the pharmacist-managed group.

The drawbacks of this study were that it was of a short duration, so long-term effectiveness cannot be assessed.

Geber et al<sup>165</sup> (2002, USA) also compared the effectiveness of pharmacist-managed care of patients with coronary heart disease via attainment of LDL goals with that of usual medical care. The researchers retrospectively reviewed the drug charts and blood results of 75 patients in each group. They found that there was statistically significantly lower LDL levels in the pharmacist-managed group compared to the medic group (92.5mg/dl compared to 112.5mg/dl in the medic group  $p<0.05$ ). The authors suggested that this was due to a failure to titrate the statin dose appropriately. They also suggest that the lower LDL levels may have arisen from the fact that the patients in the pharmacist-managed group saw a health-care provider more often as the pharmacist-managed clinic was provided on top of the patient's normal follow-up appointments. This may have biased the results considerably.

A more recent American study (2006) evaluated the effect of a clinical pharmacy service on lipid control in patients with peripheral arterial disease, and had a longer follow-up (mean 17.1 months). The authors established a pharmacist-managed, physician-monitored algorithmic approach to the outpatient management of this group of patients. From a cohort of 691 patients, 90 patients were enrolled in the lipid service (study group) and 601 received standard (physician-led) care. Patients with validated peripheral artery disease but without clinically evident coronary artery disease at one (of sixteen) randomly selected regional medical offices were enrolled

into the intervention group. All the other patients received standard care (control group). Pharmacists were allowed to initiate statins in the intervention group.

Screening fasting lipid profiles were found in 95.6% (86/90) of patients in the study group and only 66.9% of the standard care patients ( $P<0.0001$ ). Low density lipoprotein cholesterol (LDL-C) control was improved in the pharmacist-managed group, with 79.1% (68/86) achieving an LDL-C of less than 100mg/dl in comparison to the standard care group (54.8% (219/400);  $p<0.0001$ ). An LDL-C value of  $>130$ mg/dl was noted in 1.2% and 14.0% (56/400) in the treatment and control groups respectively ( $P<0.001$ ). Statin use was present in 51.9% (312/601) of the control group patients and 84.4% (76/90) of the pharmacist –managed group ( $P<0.001$ ). The authors conclude that the pharmacist-managed clinic provided improved compliance with national guidelines<sup>166</sup> and hence would suggest better patient outcomes.

The authors do not discuss why there is such a large control group compared to the intervention group. Therefore it is difficult to establish whether the results are over or under representative of the real impact that this intervention has.

A similar study (2005) (USA) compared patient outcomes of patients with dyslipidaemia who either attended pharmacist-managed lipid clinics ( $n=115$ ) or received usual care from their physician ( $n=115$ ). The patients were followed up for at least 6 months from their initial visit. The researchers found that nearly two-thirds of patients diagnosed with dyslipidaemia and enrolled in a pharmacist-managed lipid clinic had LDL-C levels at or below 2001 National Cholesterol Education Panel Adult Treatment Panel III guidelines targets compared with 16% of dyslipidaemia patients who received usual care. The pharmacist-managed clinics were also twice as likely (83 vs 41%) to have attained the total cholesterol (TC) goal.<sup>167</sup>

It is apparent that the studies reviewed have produced benefits in terms of reductions in LDL-C levels, TC level and statin use, but further studies are necessary to establish how these impact upon hard clinical end points such as coronary events and death rates and also cost-effectiveness.

Seven articles were found upon hypertension clinics, and two of these were randomised controlled trials;

Okamoto et al<sup>168</sup> compared one group of patients receiving care from a pharmacist-managed hypertension clinic ( $n=164$ ) versus a group having the usual medical care

(n=166). Pharmacists had to determine the most appropriate antihypertensive regimen for the patient. Their assignment was to rationalise the patients' medication in order to obtain similar or improved blood pressure control. The pharmacists had to contact the patient's physician in order to obtain consent for the changes they proposed. The physicians were told not to change the drug therapy unless a lack of intervention would have been dangerous for the patient. They compared the blood pressure readings of the patients at baseline, and then after 6 months care at the clinic. The authors found that there was a statistically significant lower mean systolic and diastolic blood pressure in the pharmacist group versus the medic group ( $p<0.001$ ). However this study is limited as it is of short duration and is based upon differences in two sets of blood pressure readings. It would also have been preferable to study patients that had been newly diagnosed with hypertension so that previous treatment did not affect outcome.

Vivian<sup>169</sup> (2002, USA) also compared hypertension management by a pharmacist-led clinic (n=27) versus physician management (n=29). The pharmacist made appropriate changes to medication, adjusted doses and counselled patients on their medication. They also found a statistically significant lower blood pressure outcomes in the pharmacist group- Twenty-one (81%) of patients in the intervention group attained their blood pressure goal of below 140mmHg at completion of the study versus eight patients (30%) in the control group ( $p<0.0001$ ). However, this study included a very small number of patients and was of short duration. Also, it was conducted in only one clinical setting, which limits the ability to extrapolate the results to other settings, it was also un-blinded. Another factor which could have led towards better control of blood pressure in the intervention group was that the pharmacists spent on average 30-45 minutes with each patient whereas the doctor spent only 20 minutes.

Further evidence of the effectiveness of pharmacists as prescribers can be found amongst published studies of pharmacist-run diabetic clinics. Seven such papers could be found, two of which were randomised controlled trials;

Jaber et al<sup>170</sup> (USA) assessed the effectiveness of a pharmaceutical care model on the management of non-insulin dependent diabetes mellitus (NIDDM). Patients were randomised to either a pharmacist intervention (n=17) or control group (n=22 normal physician care) and followed for a 4-month period. Patients in the intervention group

received diabetes education, medication counselling, instructions on dietary regulation, exercise, and home blood glucose monitoring, and evaluation and adjustment of their hypoglycaemic regimen (dosage increases, reductions and alterations were made by the pharmacist).

To evaluate effectiveness of the pharmacist-prescriber, the primary outcome measures were fasting plasma glucose and glycosylated haemoglobin concentrations. The researchers found that there was a significant improvement in the glycosylated haemoglobin ( $p=0.003$ ) and fasting plasma glucose ( $p=0.015$ ) was achieved in the intervention group, and no change in glycaemia was found in the control group. However, this study was of a short duration and had a small number of patients in the study as well, hence sustained, long-term effectiveness of this model is unknown. The pharmacists involved had a large time allocation to their group of patients-the authors state that this may preclude management of a larger patient load.

Scott et al<sup>171</sup> (2006) evaluated the outcomes of a pharmacist-managed diabetes care service in an American community health centre. Patients were randomly assigned by the clinical pharmacist and nurse to the intervention group ( $n=76$ ) who were enrolled into a pharmacist-managed diabetes care program or a control group ( $n=73$ ) who received standard care (physician-led). The pharmacist undertook medication review, implemented changes and could initiate aspirin. The pharmacist did not adjust medications via a protocol. The study found that mean glycosylated haemoglobin (HbA1c) levels fell significantly ( $p<0.05$ ) from baseline to nine months in both groups. A difference of 1.0 was reported between the group's HbA1c levels (95% confidence interval, 0.08-1.78;  $p<0.05$ ). Secondary outcome measures including systolic blood pressure, LDL-C levels and quality of life measures were improved compared to the control group and the patients met treatment goals more often than the control group. The authors do concede that as the intervention group was not blinded at the health centre, leading to a potential site-interaction effect which may have allowed other "usual care" providers to implement more aggressive care, leading to a reduction in HbA1c in the control group as well as the intervention group. As with the previous study, this study was of a short duration and had a small sample size. The extra feedback and monitoring that the intervention and control group received may have also caused a "Hawthorn effect" whereby both groups put more effort into controlling their diabetes, and hence led to an improvement of their

glycosylated haemoglobin levels. The pharmacists involved also had a large time allocation to their group of patients-which may preclude management of a larger patient load.

Coast-Senior et al<sup>172</sup> reported of their before and after study of pharmacist management of patients with NIDDM. The pharmacists provided diabetes education, medication counselling, monitoring and insulin initiation and/or adjustments. Patients were referred to 4 pharmacists in 2 primary care clinics over an 8 month period (n=23). The primary outcome measures were changes from baseline in glycosylated haemoglobin, fasting blood glucose and random blood glucose measurements. Glycosylated haemoglobin, fasting blood glucose concentrations, and random blood glucose concentrations significantly improved. However, the author's state that the level of glycaemic control achieved was unacceptable for the majority of patients. It is suggested that this was due to the short mean follow up period of 27 weeks. Also the patients recruited to the study tended to be older men with multiple medical problems upon multiple medications, and therefore were more difficult to gain glycaemic control. Patient numbers in this study were very small and the study was not randomized or controlled.

McCord<sup>173</sup> (2006) undertook a retrospective chart review of patients referred to a pharmacist-managed diabetes mellitus drug therapy management service. This study had a more substantial sample size compared to other studies reviewed (n=316). It was found that the mean reduction in HbA1c was 1.4% (SD=1.94) ( $p<0.001$ ) the percentage of patients whose HbA1c was at goal level at baseline ( $< 7\%$ ) increased from 14.8% to 43.2% ( $p<0.001$ ). Mean LDL level reduction was 14 (SD= 41.1) ( $p=0.002$ ), mean triglyceride level reduction 42 (SD=97.6) ( $p<0.001$ ). The percentage of patients who reached goal for LDL level ( $< 100$  mg /dl), HDL level ( $> 40$  mg/dl), and blood pressure ( $< 130/80$  mm Hg) did not increase significantly from baseline, whereas those who reached the triglyceride level goal ( $< 150$  mg/dl) increased from 36% to 55% ( $p<0.005$ ). Frequency of annual dilated retinal examinations and monofilament foot examinations increased by 29% ( $p<0.05$ ) and 12.5% ( $p<0.05$ ), respectively. Daily aspirin use increased from 35% to 59% ( $p<0.05$ ).

The service provided at this site was interdisciplinary and it therefore introduces a potential confounding influence of other providers and means that the clinical improvements found may not be attributed to the clinical pharmacist service alone.

Therefore it is apparent from the literature reviewed in this clinical area that further randomised controlled studies are necessary, with larger sample sizes in order to establish the benefits of a pharmacist-led service and to establish its cost-effectiveness.

#### 2.7.2.2 Pharmacist prescribing in specialist clinics is cost-effective

Evidence to prove the cost-effectiveness of this type of prescribing was fairly limited with seven papers mentioning cost savings, although the majority of these provided no methodology.

Okamoto et al<sup>168</sup> (USA) evaluated the cost-effectiveness of a pharmacist-managed hypertension clinic. Total costs consisted of aggregate managed care costs for any health care service provided plus drug costs for each patient. Cost-effectiveness ratios were calculated using total costs/mmHg of blood pressure decreased.

The authors found that in the pharmacist-managed hypertension clinic group, marginal cost-effectiveness ratios were lower for both systolic and diastolic blood pressures. However, the costs associated with clinic visits were statistically higher in the pharmacist-managed group ( $p < 0.001$ ).

More recently, an American paper (2006) has been published in the clinical area of epilepsy which focused on economic outcomes. Bond and Raehl<sup>174</sup> evaluated pharmacist-managed antiepileptic drug therapy in a study population of 9380 Medicare patients diagnosed with epilepsy or seizure disorders treated in 794 US hospitals. They reported that for hospitals without pharmacist-managed antiepileptic drug therapy, Medicare charges were 11.19% higher, with \$14,372,550 in excess total charges. Per patient, drug charges were \$115 higher and laboratory charges were 32.24% higher. The authors conclude that the increased costs in hospitals without pharmacist-managed antiepileptic drug therapy are substantial. Given the clinical improvements that are also made by these clinics in patient outcomes they advocate

that pharmacist-managed antiepileptic drug therapy should be an integral component of core services in hospitals.

Another American paper (2005) focused on economic outcomes of a pharmacist-managed aminoglycoside or vancomycin therapy service, where pharmacists monitored and amended doses of the aminoglycoside/vancomycin by following protocols. The service was evaluated in a study population of 199,082 Medicare patients treated in 961 hospitals. In hospitals that did not have the pharmacist-managed service, total Medicare charges were 6.3% higher (\$140,745,924 in excess total Medicare charges ( $p < 0.0001$ ), drug charges were 8.15% higher (\$34,769,250 in excess drug charges ( $U = 4.785 \times 10^9$ ,  $p < 0.0001$ ) and laboratory charges were 7.80% higher (\$22,530,474 ( $U = 4.860 \times 10^9$ ,  $p < 0.0001$ ). The authors conclude that due to these cost savings, pharmacy directors and clinical co-ordinators should develop these services as an integral component of their core services.<sup>175</sup>

Therefore there is some evidence to suggest that certain pharmacist-led specialist clinics offer economic benefits over usual physician care. It is however, unclear whether any published evidence is translatable to the United Kingdom model of healthcare. It is also unclear whether these savings made are due to the fact that it is a pharmacist running these clinics or whether any other health care professional given the same amount of time could also produce such cost savings.

#### 2.7.2.3 Patient satisfaction with pharmacist-managed clinics

Five studies evaluated patient satisfaction with the service, although three of these did not provide any methodology. The two studies that did discuss their methodology in detail are therefore discussed below.

Vivian et al <sup>169</sup> evaluated patient satisfaction with a pharmacist-managed hypertension clinic via a questionnaire survey which had been previously developed in another study. They did not find any statistically significant differences in patient satisfaction between the intervention and control groups. In the intervention group, 88% ( $n=23$ ) were satisfied with pharmacy services versus only 68% ( $n=18$ ) in the control group ( $p=0.098$ ). This was a very small study of only 56 patients in total. A critique of this study was discussed earlier (p 83).



Capper et al<sup>93</sup> assessed patient satisfaction with a pharmacist-led rheumatology drug monitoring clinic via a questionnaire. A response rate of 97% was achieved (n=61/63). Overall, 90% of respondents were satisfied with the service provided by the pharmacist, with the only negative comments being about the waiting time. This was only a small study, and did not have any previous data to compare the results with in order to establish whether satisfaction had improved. There was also no statistical analysis of the results.

Hence there is a lack of evidence to allow rigorous assessment of pharmacist-led clinics.

#### 2.7.2.4 Evidence to support the role of the pharmacist in pre-admission clinics

Another form of pharmacist prescribing which has been widely reported is that of pharmacist prescribing in pre-admission clinics.<sup>76-78, 80, 82, 176-179</sup> Eight articles were found which reported the pharmacist role in surgical pre-admissions clinics. One of these was a non-randomised controlled study,<sup>78</sup> one was a randomised controlled trial<sup>179</sup> and the rest were descriptions of the activities occurring within the clinics. Where this review has been updated to include literature post-2002, (when the first phase of the research for this thesis was developed) the year of the paper will be highlighted.

At these clinics, two different prescribing activities were performed. Pharmacists wrote the patients normal medication onto the in-patient drug chart, to be used when the patient arrives at hospital, and also wrote the patients discharge prescription during the clinic, so that it can be dispensed as soon as the patient arrived at the hospital. This avoids any delays that may have occurred in the previous system, when the patient waited for their discharge medication to be dispensed *after* the discharge decision was made.

The randomised controlled trial was an American study (2007),<sup>179</sup> in a single hospital setting which sought to measure the discrepancies associated with a combined intervention of structured pharmacist medication history interviews with assessments in a surgical preadmission clinic and a postoperative medication order form. Eligible patients were randomly assigned to the intervention arm (n=227) or to the standard care arm (n=237) (nurse-conducted medication histories and surgeon-generated

medication orders). The primary end-point was the number of patients with at least one postoperative medication discrepancy related to home medications. In the intervention arm, 41 (20.3%) of 202 patients had at least 1 postoperative medication discrepancy related to home medications, compared with 86 (40.2%) of 214 patients in the standard care arm ( $p < .001$ ). In the intervention arm, 26 (12.9%) of 202 patients had at least 1 postoperative medication discrepancy with the potential to cause possible or probable harm, compared with 64 (29.9%) of 214 patients in the standard care arm ( $p < .001$ ). These were mostly omissions of reordering home medications. The authors concluded that a combined intervention of pharmacist medication assessments and a postoperative medication order form can reduce postoperative medication discrepancies related to home medications. As this study was undertaken at one centre only, the generalisability of the results is limited.

Hick et al<sup>78</sup> recruited 100 elective general surgery patients, and separated them into two groups of 50 as part of a non-randomised controlled study. The groups were comparable for age, surgical procedure and use of medicines. The control group received standard ward pharmacist visits, and the intervention group were seen by the pharmacist in a pre-admission clinic. In the pre-admission clinic, the pharmacist took a patient medication history, wrote the patient's normal medication upon the in-patient drug chart, and any medications routinely needed for the procedure. The pharmacist also wrote the patient's discharge prescription. Also the pharmacist assessed the appropriateness of the patient's own drugs for use in the hospital, advised the clinicians on which drugs needed to be stopped pre-operatively, recorded any clinical interventions and counselled the patient. The doctor always co-signed the drug chart and prescription. Outcome measures included the number of interventions and clinical significance using a visual analogue scale. Peer review analysis from other pharmacists revealed a statistically significant higher intervention score in the intervention group ( $p = 0.003$ ). The authors commented that although this clinic released junior doctor time, the cost of a suitably qualified pharmacist to undertake this activity was greater than a junior doctor. They also note that although this was an effective method of preventing prescribing errors, cost-effectiveness still needs to be proven.

Several reports suggest the benefits of pharmacist-led pre-admission clinics (including avoidance of cancelled operations)<sup>77</sup> but there is little quantitative evidence to support this.

### 2.7.3 Writing discharge prescriptions

In the mid 1990's it was apparent that there were many problems and inefficiencies with the way pharmacy services were being provided within secondary care.<sup>180</sup> A new model of practice was published which suggested that pharmacists ought to write discharge prescriptions, earlier in the patient's stay, so that when a discharge decision was made, the patient's take home medication was ready.<sup>102</sup>

A questionnaire survey by Sexton et al from 1999 sought to identify the services that hospital pharmacies were providing to facilitate seamless care upon discharge. It was the first survey to quantify how frequently pharmacists were involved in writing discharge prescriptions within secondary care in the UK. It established that in approximately a third of hospitals, pharmacists were involved in the task, but their overall impact was almost negligible.<sup>67</sup>

Considering that Sexton suggests that a third of all hospitals in 1999 had pharmacists involved in discharge prescribing, there have been relatively few studies published in this area. All of the published research upon pharmacist prescribing has been reports from single hospitals (n=7), and only one of these was an American study, the rest originating from the UK. Three reports have been about pilot studies,<sup>72, 74, 99</sup> one report was a before and after study,<sup>181</sup> there were two controlled studies<sup>70- 71</sup> and one randomised controlled study.<sup>75</sup>

The studies have taken place mainly on medical wards, but also a couple of surgical wards and also one combination of both. The studies lasted between one to four months, and four of these studies compared the pharmacists providing this service to doctors.

There have been several outcomes measured from these studies:

#### 2.7.3.1 Increased timeliness of the discharge prescription

Five studies used timeliness of the prescription as an outcome measure, and the studies indicated that pharmacist-written discharge prescriptions were timelier than those written by doctors.<sup>70- 74, 75, 99, 181</sup>

In 2001, Cattell et al<sup>75</sup> recruited 68 patients from one surgical and one medical ward at the Bristol Royal Infirmary. Patients were assigned to have their discharge medication organised either by a pharmacist (intervention group) or by the existing system

(control group). Information relating to a variety of prescription processing times, together with data on clinical interventions and use of patient's own drugs, was recorded for each group.

Sixty-eight patients were recruited from one surgical ward and one medical ward at the hospital. Wards were randomised into two 12-bed areas, and allocated as intervention and control sites. Data collection forms were collected over a period of eight weeks.

The key findings were that median discharge prescription processing time (time from discharge decision to patient discharge) was significantly less in the intervention group than in the control group (322 vs 460 min  $p=0.056$ ). The median discharge prescription dispensing time was significantly greater with the existing system than when the discharge pharmacist transcribed prescriptions (240 vs 177 min  $p=0.005$ ). The authors conclude that the integration of a pharmacist into the discharge system improves the timeliness of discharge, benefiting hospital bed management. Significant reductions in drug wastage and release of medical time were also apparent using this process.<sup>75</sup>

Although this study is the only randomised controlled trial that has been undertaken in this area, and was statistically validated, the sample size was small ( $n=68$ ) and the study period was only 8 weeks.

In April 2001, Hammersmith Hospitals NHS Trust published a report describing a pilot study of their discharge pharmacist service. The service ran from December 1999 to March 2000. The discharge pharmacist post provided the service to five medical wards at the hospital. The discharge pharmacist was involved in 244 discharges (36%). However, the pharmacist transcribed only for 102 discharges, the other discharge involvement was with counselling and scheduling of the prescription. The researchers found that the pharmacist-transcribed prescriptions were available for dispensing a median of one day in advance of discharge compared to 0 days in advance for a doctor written prescription.<sup>74</sup>

Milliken et al described a controlled study that sought to evaluate the introduction of a pharmacist-led discharge prescription service.<sup>70</sup> A clinical pharmacist was available an equivalent of two and a half days a week, and the system was used on one 27 bed general medical ward for two months. The clinical pharmacist entered the patient's

medication onto a computer-based clinical information system in advance of the discharge of the patient, and when the discharge decision had been made, the prescription was printed. During the study, 54% (n=121) of discharge prescriptions were entered by a pharmacist and 46% (n=104) by medical staff. As they attached a time log label to each prescription, they were able to ascertain that on average, prescriptions arrived in the dispensary earlier when printed by a clinical pharmacist (9min vs 12 min). It was concluded that it was appropriate for a clinical pharmacist to enter drugs on discharge and to print discharge prescriptions.<sup>70</sup> However, the significance of the time savings made is unclear. The study was also short at 2 months.

Barrett et al (2002) described a before and after study where they introduced a new pharmacist discharge service on one medical ward. The pharmacist led a junior doctor and nurse ward round, and was able to anticipate when the patients were being discharged, and hence write their discharge prescription, and have it dispensed and back on the ward before the patient was discharged. The authors state that the time spent by patients awaiting discharge was reduced from 4.5 hours to 40 minutes,<sup>181</sup> however, this was not statistically validated.

The study was fairly short (3 months) and also the design of the study (before and after) inherently leads to bias potential.

#### 2.7.3.2 Increased accuracy of the discharge prescription

Four studies have evaluated whether the prescriptions that pharmacists write are more accurate than those produced by doctors.

Boorman and Cairns<sup>72</sup> attempted to implement a novel model of hospital based pharmaceutical care using a medical team based pharmacist. The study was carried out over two separate three-month periods. During the control period (July to September 1996), a traditional visiting clinical pharmacy service to review prescribing and provide advice was in place.

During the study period (February to April, 1997) one clinical pharmacist was attached to a consultant medical team. This pharmacist attended the morning ward round each day for a 22-bed medical ward. The pharmacist wrote To Take Away

(TTA)s for patients scheduled for discharge, which were clinically validated by the doctor prior to dispensing.

The impact of this new model was evaluated by analysis of three activities: clinical interventions, TTA provision and the re-use of Patient's Own Drugs (PODs).

Clinical interventions were collected by all pharmacists providing clinical services for medical, surgical and care of the elderly wards during the control period and by the study pharmacist only during the study period.

During the control period, 556 interventions were recorded by eight pharmacists, 437 (78%) of which were related to medical patients. There was no difference in the nature of interventions, the grade of doctor with whom the intervention was discussed, and whether the intervention was prospective or retrospective, between the study pharmacist and other pharmacists during the control period.

The team-based pharmacist made 237 interventions in the study period compared with 114 interventions in the control period. There was a significant shift in the grade of medical staff with whom the intervention was discussed to being a more senior doctor ( $p < 0.001$ ). In addition to a doubling of the number of interventions there were increases in interventions of a multiple nature, i.e. those that involved a number of problems and/or causes, and an increase in the number of interventions made prospectively.

187 discharge prescriptions were available during the control period from a total of 587 prescriptions written. Of these, junior house officers wrote 80%. Errors or omissions were found in 57 (30%) of the sample.

During the study period, the pharmacist wrote 102 discharge prescriptions during or immediately after the morning junior doctor rounds of which 94 (92%) were validated by the doctor, with no errors omissions or alterations documented. All the alterations on pharmacist written discharge prescriptions were either additions arising from new medication being prescribed or existing medication being stopped after it had been written.

The authors conclude that pharmacists can contribute more frequently to prescribing and management of medicines by working more closely with the medical team. The decreased prescribing errors on discharge prescriptions provide a safer system and improvements in pharmaceutical care of patients.<sup>72</sup>

The study did not quantify the effect of the service upon junior doctor's time. As the intervention data was self-reported, it could lead to potential bias from the observer. A

further source of potential bias is that the study has sequential control and study periods. Also the study was of short duration (3 months).

Barrett et al<sup>181</sup> (2002) also investigated the accuracy of the pharmacist-written prescriptions via the need for intervention by dispensary pharmacists. The authors found that the number of prescriptions needing pharmacist intervention at the dispensary decreased from 6.2% (n=8) for prescriptions written by the doctors, to 0.9% (n=1) of prescriptions written by the pharmacist. However, this was not statistically validated, and was also a very small number of prescriptions involved.

Jacklin et al<sup>74</sup> stated that the pharmacist writing discharge prescriptions made additional interventions compared to a normal pharmacist service (n=38, 52%). However the significance of this is not clear, and also the pharmacist only transcribed a fairly low number of the overall prescriptions written.

It was also reported in the Audit Commission's report 'A spoonful of sugar'<sup>49</sup> that pharmacists are five times more accurate than doctors in writing discharge prescriptions, and hence it advocates that pharmacists undertake this role ( Although, this finding in the Audit Commission's report is taken from a MSc thesis (Stevenson N, MSc thesis, Liverpool John Moores University, 1998) and hence this implies it was probably a small and localised study and indicates that the strength of this evidence might be limited).

#### 2.7.3.3 Increased cost savings with pharmacist transcribing services

Cattell et al<sup>75</sup> suggested that the implementation of their pharmacist discharge prescription transcription service saved £6 per patient but this was due to re-use of the patient's own drugs. The study has therefore not assessed what savings the service implementation itself has made due to e.g. increased timeliness of discharge prescriptions leading to earlier discharges. This same comment could be made about the purported savings made by Barrett et al, of £4 per patient.<sup>181</sup>

Feil et al (USA) also reported cost savings when patients own drugs were used more often when pharmacists wrote discharge prescriptions.<sup>71</sup>

No studies have assessed the potential costs savings made **directly** from implementing this service. Increased bed turnover, savings in doctor time involved



with writing prescriptions and nurse's time asking doctors to write prescriptions. Also increased accuracy of prescriptions which lead to less prescribing errors, will all have a cost-saving impact.

#### 2.7.3.4 Increased patient and doctor/nurse satisfaction with pharmacist discharge prescription services

Evidence to suggest that pharmacist discharge services are well liked by patients and/or staff is scarce. Jacklin et al report that a survey that was returned by 18/31 nurses and doctors involved with the study wards indicated that they were positive about the service. The survey asked general questions such as "Is it a good idea to have a discharge planning pharmacist?", "Do you think the discharge pharmacist should be transcribing discharge prescriptions?" and "Has the service been useful in freeing up time for doctors and nurses?". However, the study does not indicate how the survey was validated, whether it was piloted and the response rate is not good.<sup>74</sup>

#### 2.7.4 Prescription amendment/therapeutic substitution

Twelve articles could be found upon this prescribing activity. Eight of these articles focused on pharmacists being permitted to switch certain drugs within specific groups as a formulary substitution -most commonly statin substitution. Cost analyses of the savings made by these changes were also presented in the majority of the papers. Seven articles were American<sup>182-189</sup> and there was one UK paper which did not present any data on cost analyses.<sup>190</sup>

The earliest description of a pharmacist prescription amendment policy was in 1997 by Glinn et al.<sup>98</sup> This was a brief description of a policy, which enabled pharmacists to amend certain prescription items on in-patient drug charts without contacting the doctor at Treliske Hospital in Cornwall. It mainly included changing the timings of certain drugs, frequency of antibiotics and formulary substitution.

Hughes et al<sup>97</sup> described a non-controlled study that they undertook, which allowed pharmacists to undertake certain prescription amendments without reference to a doctor. The authors suggest that there were costs savings in a small number of the prescription amendments, and also increased patient satisfaction, but do not quantify this in any manner, or supply methodology.

Woolfrey et al<sup>96</sup> evaluated the views of pharmacists, doctors and nurses about the implementation of a prescription amendment policy. Selected qualitative responses were presented, which suggested a positive reception to the scheme.

In the only UK study found, pharmacists were permitted to substitute modified-release isosorbide mononitrate (ISMN) for standard-release ISMN after completing a baseline study of frequency and timing of chest pain, the number of rescue doses of sublingual nitrates needed alongside an assessment of adverse effects experienced. These parameters were also assessed one month after the pharmacist substituted the patient's therapy to the standard-release formulation. This was a small before and after study with only 8 patients participating. These participants did not experience any loss of control of chest symptoms, did not need to use any extra doses of rescue nitrates and did not experience an increased incidence of adverse effects. Therefore the authors concluded that therapeutic substitution of nitrates by pharmacists was successfully managed without any clinical deterioration of the patients' symptoms.

Finally, it should be noted that the American College of Physicians- American Society of Internal Medicine released a position statement about the scope of practice of pharmacists in 2002, in which they reiterated their support of pharmacist therapeutic substitution.<sup>191</sup> In the statement they resolved to work with pharmacists in designing therapeutic substitution policies to ensure the highest level of patient care and safety. This statement also includes support for pharmacist therapeutic substitution from the American College of Clinical Pharmacy along with their guidelines for the process.

There is not a large amount of literature about therapeutic substitution available. This might be because such changes may be viewed as being straight forward, and does not deviate too much from what pharmacists already do. For the medical profession, such changes are not very controversial on a local scale and still allow them to retain control over what pharmacists can and can't do in a prescribing role. They might also represent very laborious and menial jobs that the medical profession wouldn't mind not having to do anyway. Prescription amendment/therapeutic substitution represents a process that pharmacists can do at a local level if policies and protocols are developed in conjunction with medical staff agreement.

### **2.7.5 Electronic Prescribing**

One of the key elements of the government's White Paper, "Information for Health"<sup>192</sup> was the implementation of Level 3 electronic patient record within 100% of acute hospitals by 2005. However, progress on implementation of electronic patient records has been slower than expected and this target has not been met.

When Level 3 electronic prescribing is implemented, there will still be a role for the pharmacist to decide upon the appropriateness of treatment on discharge and input the discharge prescription onto the computer. Some pharmacists are already using similar electronic prescribing systems in this manner, and have become more integrated into the healthcare team.<sup>193, 194, 195</sup>

### **2.7.6 Development of Pharmacist Prescribing in USA**

The development of the prescribing role for pharmacists parallels practice issues in other countries, notably the establishment of collaborative practice agreements in the USA. Pharmacist prescribing was first introduced in California in the late 1970's, and since then has been extended to at least 16 states. In 1979, Washington changed its legislation to allow pharmacists to prescribe under protocols agreed with a physician and registered with the state board of pharmacy.<sup>196 197</sup> Only one state (Florida) has introduced independent prescribing, where pharmacists are prescribing from a limited list of drugs.<sup>196</sup> Collaborative drug therapy management has become the suggested model of pharmacist prescribing in America, whereby the pharmacist has a collaborative arrangement with a physician to dependently prescribe certain medications as agreed in a management plan.<sup>197,198</sup> The development of supplementary prescribing has been informed by this collaborative drug therapy management model. In this model, the pharmacist has a collaborative arrangement with a physician to dependently prescribe certain medications as agreed in a management plan.<sup>197-199</sup> In some cases, clinical pharmacy specialists are also prescribing independently, especially in veteran's affairs medical centers, which allow greater freedom to prescribe under locally agreed protocols.<sup>196, 200</sup>

The main differences between pharmacist prescribing in the USA and the UK are that in the UK, supplementary prescribing represents a more coordinated, centralized approach, where the same model is being used nationally, with an associated formal

training process and stipulated competencies (in areas including communication, consultation skills and diagnostic skills) that the pharmacist needs to achieve in order to qualify as a supplementary prescriber. Unlike the USA, where the pharmacist prescriber needs to be credentialed by their individual institution<sup>201</sup> to provide drug therapy management services, in the UK, once the pharmacist has attained the supplementary prescriber qualification, they can move to any secondary or primary care trust and the supplementary prescriber qualification will be recognized. However, the non-medical prescriber does always need to prescribe within the limits of their own competencies.

Collaborative practice protocols are very similar to the CMP that is used in supplementary prescribing, but a CMP has to be written individually for each patient that is seen, and also has to be agreed by the patient and the independent prescriber. Therefore rather than a general protocol being produced which applies to all patients being seen with a certain condition, the CMP is very much a tailored document for each patient that is seen by the non-medical prescriber.

Since some pharmacists in the USA have been involved in prescribing medications for patients as part of drug therapy management services for such a long time, much has been learnt from their experiences in the development of pharmacist prescribing in the UK. Experience in the USA has also shown that even when legislation is in place for pharmacist prescribing to take place, certain barriers, such as establishing a working relationship with physician colleagues, have to be overcome in order for a successful service to be developed.<sup>201</sup>

Within the pharmacy profession in the USA there is still disagreement about whether medication prescribing should be an independent or protocol-limited privilege, and about whether this responsibility is needed or even wanted by most practicing pharmacists.<sup>202</sup>

There appears to be no published cases in which pharmacists have been sued in civil actions on the basis of the exercise of their prescribing authority in America.<sup>203</sup>

Review of the published literature seems to suggest that the advent of pharmacists writing discharge prescriptions seems to be a role that is peculiar to the UK. Although pharmacists in certain US States have extensive prescribing rights in terms of initiating, modifying and discontinuing medication, especially in outpatient clinics,<sup>196, 204- 205</sup> only one American abstract could be identified which concluded that pharmacists should write discharge prescriptions on the basis of less adverse drug

events and more cost-effectiveness when compared to those written by physicians and nurse practitioners.<sup>71</sup>

### **2.7.7 Pharmacist prescribing in the rest of the world**

In the rest of Europe, New Zealand and Australia, pharmacists do not have the right to prescribe, and no literature could be found to suggest that any other countries have pharmacists which write discharge prescriptions. This could well be due to discharge prescription provision not being such a source of delayed discharge or error in these countries. Also primary care may be more involved in the discharge process.

In many European countries, pharmacists are active in preventing and correcting drug-related problems (such as Belgium, France, Germany, The Netherlands, Norway, Sweden); however, pharmaceutical care is in its infancy in the majority of Europe. It has been suggested that European pharmacists have a lack of authority to take an active part in decision-making for drug prescribing, and lack support from some physicians to be part of the healthcare team.<sup>206</sup> Training is not clinically orientated and focuses much more on the basic science of pharmacy as opposed to the clinical element. It is now recognised that there needs to be substantial changes made to most universities' curricula in Europe in order to arm pharmacists with the suitable knowledge and skills to implement pharmaceutical care efficiently.<sup>206</sup>

### **2.7.8 What this literature review highlights**

The research evidence presented here highlights the need for further research in order to quantify the benefits pharmacist prescribing and prove its safety for patients (N.B. The research reviewed in this section is that undertaken outside of the models of supplementary prescribing and independent prescribing that are now legalized). It is noted that there have been very few randomised controlled trials in the area of pharmacist prescribing, and the few that have been done have their limitations. Many of the studies were either non-controlled or before and after studies which have various weaknesses in their methodology and hence generalisability of the results. Most of the published studies are from individual organisations and the pharmacist-prescribing activities that have been developed across primary and (mainly) secondary

care are based upon very poor, ungeneralisable studies and anecdotal evidence. This is much the same for nurse prescribing.

The other areas which seem to lack supporting evidence in pharmacist prescribing in specialist clinics is the longer-term benefits to the patient, and also benefits in terms of effect upon mortality and morbidity. Also there is very poor evidence in the area of cost-effectiveness of pharmacist prescribing.

There is an issue of commonality in prescribing skill and competency between nurses and pharmacists who will bring such different skills to the prescribing role. It is becoming apparent that there are certain areas of prescribing that will be more appropriate to nurse prescribers, such as single clinical areas, including asthma, hypertension and heart failure, and other areas that would suit pharmacist's skills, such as medicines management in the elderly, and other areas where polypharmacy is commonplace, such as renal clinics and rheumatology clinics.

The four different areas of pharmacist prescribing research provide evidence at different levels of complexity of prescribing. For example, anticoagulant prescribing is a very narrow speciality, which is very easily monitored via INR, and limited clinical experience is needed in order to undertake such a role. In the area of writing discharge prescriptions, a thorough review of the suitability and appropriateness of the medication should be undertaken by the prescriber, and therefore it isn't a case of simply copying a list of drugs from one chart to a prescription. A patient may be taking medication for numerous medical conditions and hence there is a much wider knowledge required of all of these conditions, how to treat them, monitor them and ensure that all the medications prescribed do not interfere with any other medications that are prescribed. Within some specialist clinics, such as medicines management and renal clinics, many different signs and symptoms may need controlling with medication as a result of the patient being elderly or having renal impairment, which may involve numerous drug changes.

Therefore there are limitations to applying outcomes of one type of prescribing to another, and so it is difficult to generalize the evidence provided by the literature upon anticoagulation to other types of pharmacist prescribing.

It is apparent that there will have to be a lot of care in choosing the complexity of prescribing by allied health care professional's as there is a grey area where diagnosis and prescribing merge (especially when asking who is going to monitor the

outcomes). So care will have to be taken when considering which models will work and their applicability.

With respect to pharmacists writing discharge prescriptions, the literature review has shown that such services have reduced the error rate on the prescriptions when compared to those written by doctors, doubled the intervention rate by the pharmacist, and increased the number of prospective interventions that the pharmacist makes.<sup>72</sup> All of these findings fall into line with the recommendations of the Audit Commission report.<sup>49</sup>

Realisation of the benefits and the developments that can arise from such service provision could also help pharmacists gain acceptance within the clinical team as a provider of pharmaceutical knowledge, and lead to further development of the pharmacist's role.

The disadvantages of such a service relate to resource issues. For the service to be implemented throughout a hospital, it would be necessary to maximize the technician role in order to release pharmacist time from the dispensary and other duties. Therefore although the PDPTS has its disadvantages, overall it would appear that it is a worthwhile service for pharmacy to be providing in terms of the benefits to the patients.

### **2.7.9 How this literature review has helped to develop the first aim and objectives of the research**

Table 1 (p 54-55) shows the important consultations, legislation announcements and documents that were available when each stage of the research in this thesis were developed and undertaken.

When the first questionnaire survey, "*Pharmaceutical input to the discharge process, a survey of Hospital Pharmacy Services*" was developed, there was a lot of speculation about pharmacists being allowed to prescribe in some format in the future. This was fuelled by the Review of Prescribing, Supply and Administration of Medicines Final Report (–March 1999)<sup>11</sup> advocating the extension of prescribing rights to pharmacists and nurses and also in the *Pharmacy in the Future-Implementing the NHS plan* (Sept 2000)<sup>46</sup> Report. There was also literature published about pharmacists writing discharge prescriptions in various hospitals,<sup>73-74, 195, 207</sup> as well as informal discussion between pharmacist colleagues in different hospitals about

development of pharmacist discharge prescription transcription services (PDPTS). Although there have been many reports advocating the benefits of providing PDPTS<sup>49, 70-72, 74- 75, 99, 208- 209</sup> there is no consensus view available upon the benefits of the process. It is also unknown how much influence these factors have upon the decision to provide a PDPTS service. It is important to establish these driving factors, as they will be applicable for other pharmacist prescribing roles and the impact of these factors upon service development could be considerable.

Due to the legal status pre-2003 and responsibility for these prescriptions written by pharmacists being so unclear, these issues could be considered a potential barrier to development of PDPTS. Therefore authorisation requirements for pharmacist-written discharge prescriptions were also investigated, together with the prevalence of formal protocols for PDPTS within hospital pharmacy departments offering such a service.

A survey conducted by Sexton<sup>67</sup> (1999) identified that out of 162 hospital trusts, a third involved pharmacists in writing discharge prescriptions, but their overall impact on the total number of prescriptions being written was negligible. The survey did not attempt to suggest reasons for this, but did report that managers responding to their survey stated that there were continuing resource and staffing difficulties. The survey did not aim to describe the pharmacist prescribing services.

Literature review undertaken before the survey was developed did not identify any research that provided quantitative data upon PDPTS provision in the UK.

Although this literature review has emphasized the poor quality of the research into pharmacist prescribing, it also highlighted a need to establish a baseline of what pharmacist prescribing was being undertaken in the UK and how commonplace it was in 2001. As there were many more reports of pharmacist prescribing activities taking place within secondary care (and commonly in the area of writing discharge prescriptions) it was decided that a questionnaire survey ought to be undertaken of secondary care in the UK, focusing on pharmacists writing discharge prescriptions. This survey would be used to not only establish the prevalence of pharmacist prescribing in 2001 but also to provide detail upon the type of services being provided, the training requirements for the pharmacists involved, the prevalence of formal protocols for such services and the key factors influencing hospital's decisions to initiate pharmacist discharge prescription transcription services.

Alongside this data about the service being provided, it was also apparent that some of these services may not be provided within a legal framework (see section entitled:



The issue of legal responsibility for pharmacist-written prescriptions before supplementary prescribing was legalised (pre 2004 p 44) and hence there was a clinical governance issue. Therefore data needed to also be collected upon how the prescriptions were being authorised and also what training provision there was for pharmacists undertaking this role.

The methodology used in this first stage of this research is discussed on p112 in the methods section.

Aim:

***To establish the prevalence of pharmacist “prescribing activities” within secondary care in the UK, & to describe in detail the provision of pharmacist discharge prescription transcription services (PDPTS).***

Objectives for phase 1

The objectives of this survey were as follows:

- To identify the frequency of PDPTS provided in the UK
- To provide further detail upon the level and type of service provided and training requirements for pharmacists involved in such services.
- To investigate authorisation requirements for pharmacist-written discharge prescriptions and to determine the prevalence of formal protocols for PDPTS within hospital pharmacy departments offering such a service.
- To establish key factors influencing hospitals’ decisions to initiate PDPTS.

## **2.7.10 Consideration of developments in pharmacist prescribing by 2004.**

### **2.7.10.1 Supplementary prescribing for pharmacists**

This role has been viewed as a major step forward in the development of the pharmacist's role. Although this was the first time that pharmacists would be legally able to prescribe, it has been acknowledged that pharmacists had already been "prescribing" and had circumvented problems that arose from the legislative controls upon prescribing, by asking doctors to sign prescriptions that they had written.<sup>177, 210</sup> The model of supplementary prescribing may not be suitable for all of these prescribing roles, especially writing discharge prescriptions.

### **2.7.10.2 How supplementary prescribing fits in**

There is no national strategy to guide which clinical areas supplementary prescribers should practice in, or where areas of expertise should be developed. Without this, development of supplementary prescribing will happen in an ad hoc way.<sup>211</sup> This represents a missed opportunity to target these extra prescribing resources upon health areas that need improvement within the population, such as heart disease. However, it does enable Primary Care Trusts to develop services according to local needs in a targeted manner.

It is important to establish which clinical areas pharmacists and nurses are using their supplementary prescribing qualification in, so that it may be possible to start considering whether the clinical areas are most beneficial from a strategic viewpoint. Chiropodists/podiatrists, physiotherapists, radiographers and optometrists will use their prescribing skills in very narrow, specialist areas, it is therefore not expected that there will be any overlap of their prescribing area with other non-medical prescribers. However, there might well be some overlap between nurses and pharmacists clinical areas.

### **2.7.10.3 Attitudes and perceptions of supplementary prescribing**

The implementation of supplementary prescribing will be influenced by many external factors such as attaining funding of the service, funding for the training itself,

funding for backfill whilst the pharmacist is training and ability to recruit a designated medical practitioner (DMP) to supervise part of the training. It may also be influenced by the perceptions that the people who may be in overall charge of implementation have with respect to supplementary prescribing.

During the consultation process for supplementary prescribing,<sup>15</sup> many issues and risks with the proposed supplementary prescribing model were raised with the Department of Health.<sup>53</sup> Although some of these envisaged problems were dealt with as part of the consultation process, some negative perceptions and issues that were raised may have had an impact on health care professional's perceptions of supplementary prescribing.

The literature review identified other pharmacist prescribing roles (NON-supplementary/independent prescribing), which were taking place prior to SP being legalized. Previous experience of these types of prescribing within a trust may also influence CPs and PCTP's opinions upon how successful SP will be.

#### **2.7.11 How this literature review has helped to develop the second research question and derive the aim and objectives.**

When the second questionnaire survey was being developed, supplementary prescribing (SP) had been legalized, some pharmacists were undertaking the SP training and the first prescription had been written by a pharmacist supplementary prescriber (2004). As there was now a legal framework available for pharmacists to use to prescribe, it was felt that it was important to establish how chief pharmacists intended to introduce supplementary prescribing within secondary care, and primary care trust pharmacists within primary care and within which clinical areas. As the first questionnaire survey had highlighted the poor adherence to clinical governance standards amongst some hospitals that were already allowing pharmacists to "prescribe", it was also important to examine their thoughts upon the risks and issues surrounding supplementary prescribing. Reducing the risks and issues surrounding the role extension of prescribing (for full discussion see section entitled clinical governance, risk and prescribing p44) had been highlighted in The Royal Pharmaceutical Society of Great Britain Pharmacist Prescribing Task Group, First Report, Supplementary prescribing by pharmacists (July 2002).<sup>52</sup> This report stressed the importance of clinical governance and established that there would be a need for

the development of a competency framework, criteria for demonstrating on-going competency and Continuing Professional Development (CPD) for supplementary prescribers. Anecdotally, pharmacist colleagues were also raising questions about the safety of certain aspects of non-medical prescribing and wanted to be sure that clinical governance procedures would keep the safety of the patient paramount. Hence, it was felt important to focus part of this questionnaire on the risks surrounding supplementary prescribing.

### Aim

***To investigate the views of chief pharmacists within secondary care and pharmaceutical advisors of primary care trusts in England upon the implementation, risks & issues surrounding supplementary prescribing.***

### Objectives

The objectives of this survey are as follows:

- To establish how chief pharmacists in secondary care, and primary care pharmacists in primary care, were implementing pharmacist supplementary prescribing within their trusts and their reporting of how nurse supplementary prescribing was being implemented within their trust.
- Collect quantitative data upon the numbers of pharmacists and nurses who were being trained as supplementary prescribers, which type of pharmacists and nurses were being trained and the therapeutic areas they would be working in.
- Investigate the perceptions of chief pharmacists and primary care trust pharmacists upon the risks and concerns surrounding supplementary prescribing.

## **2.7.12 Consideration of developments in pharmacist prescribing by 2005.**

### **2.7.12.1 Evaluation of Supplementary Prescribing (SP)**

Those publications discussed which were published after the last research project was started (January 2006) will be highlighted as such. The evaluation of supplementary prescribing (SP) by pharmacists has been mainly reported as individual case reports, evaluating questionnaires and commentary. This is unsurprising as the first prescription was written by a pharmacist supplementary prescriber in March 2004.<sup>212</sup> There are many gaps in published literature which do not allow for full evaluation of SP services. No randomised controlled trials evaluating the outcomes of the consultations and the recommendations made have been reported in the literature. Nor have any studies which compare the care to that provided by doctors or which undertake an economic evaluation of the services being provided. There is also only a limited amount of data regarding patient's opinions upon pharmacist prescribing.

A qualitative evaluation of supplementary prescribing pharmacists sought to explore how the role was working in practice and the factors which contributed to successful and unsuccessful pharmacist prescribing practice<sup>213</sup> (Published in 2006, whilst phase 3 of research was being undertaken). This exploration found that the pharmacist supplementary prescribers found the role rewarding and perceived that there were clear benefits to patients in terms of the time they had for them in the consultations and the amount of information they were able to give them. During this two-phase research study, ten patients were interviewed about their experiences with the pharmacist supplementary prescriber. It was found that there was a general lack of awareness and understanding of the SP role and how the arrangement worked in practice by patients (and other healthcare professionals). They also did not see what the benefits of such an arrangement were for themselves, however some patients did admit that they felt that they received more information about their medications and that the pharmacist had more time for them. Numerous recommendations were made in order to more successfully implement SP.

A questionnaire survey was undertaken of all qualified pharmacist supplementary prescribers in September to November 2005 (published in 2006) in order to explore their early experiences of prescribing and their perceptions of the prescribing course they undertook.<sup>214</sup> 48.6% (n=195) of the respondents self-reported that they were

actively practising and 79% (n=154) of these had written a prescription. Lack of organizational recognition of SP was given as the main reason for those not commencing practice (37; 18%). Better patient management was regarded as a major benefit by 139 (71.3%) of those engaged in SP whilst funding issues were identified by 71 (36.4%) as major barriers in implementing the practice. The authors concluded that pharmacists needed more support in terms of infrastructure and integration into the healthcare team to overcome barriers to implementing SP.

Various abstracts have been published from on-going research where pharmacists undergoing training have been questioned about the training itself or problems they were facing with implementing their SP when they qualified<sup>215-216</sup> or pharmacists that had recently finished their training about implementation of SP.<sup>217</sup>

An abstract has also been published regarding doctor's opinions in secondary care about pharmacist SP<sup>218</sup> which found that although they were positive regarding their relationship with pharmacists, doctors were largely unaware of pharmacist SP and did not feel that pharmacists were the most appropriate healthcare professional to prescribe.

A similar abstract by the same lead researcher of hospital nurses views on pharmacist SP found that although the nurses were very positive about pharmacist's skills and knowledge regarding drugs, they had concerns regarding pharmacists being the most appropriate healthcare professional to prescribe.<sup>219</sup>

Qualitative interviews held with doctors, nurses, pharmacists and business managers within one secondary care NHS trust (2006) found that although all of the stakeholders supported the introduction of non-medical prescribing within their trust, medical staff had reservations and thought that it should operate within controlled protocols. The medical staff disagreed with the concept of independent prescribing. Pharmacists were seen by both doctors and nurses as being experts in drug therapy but lacking diagnostic skills and knowledge of patients.<sup>23</sup>

One paper could be found which evaluated patient's opinions of a single pharmacist-led SP hypertension clinic (2006).<sup>220</sup> The authors conducted a closed question, self-administered postal questionnaire of the patients that the pharmacist had seen. They concluded that the patients found the standard of care to be better than the normal doctor clinics and their understanding of their condition and involvement in treatment decisions had improved since attending the clinic. This was the only paper found which specifically sought patients' views upon pharmacist prescribing.

Research regarding patient's opinions of nurse prescribing from the initial nurse prescribing formulary to extended and supplementary prescribing can inform how patient's may regard independent prescribing by nurses and pharmacists. This research has been discussed previously (section 2.2.1, p 59) along with an evaluation of nurse prescribing research. The literature showed that patients were very positive about nurses as prescribers. Patients had such trusting relationships with nurses due to their stable and long-standing relationships with them. However, pharmacists (especially secondary care pharmacists) do not necessarily have these established relationships with patients. Pharmacists also do not have a recognized prescribing role in the eyes of patients which community nurses did before supplementary prescribing was legalized. Therefore, although it would appear that patients have been very accepting of nurses as independent/extended formulary prescribers, in the limited number of studies that have been undertaken, patients may not be quite as accepting of pharmacists as prescribers.

Although evaluation of SP is in its infancy, the introduction of independent prescribing may limit the number of studies investigating SP. The uptake of SP has been much slower than the Department of Health had wanted (1000 qualified pharmacist SP's by end of 2004, this figure was not achieved until November 2006) and the reasons for this are discussed in the discussion (section 5.2.2.1.5, p 286).

The views and attitudes of Scottish community pharmacists were sought upon independent prescribing (2006).<sup>221</sup> The authors found that there was high awareness of independent prescribing and perceived competence in diagnosing and selecting appropriate drugs for treating many common conditions. The authors concluded that prescribing training with emphasis on evidence-based medicine, generic issues of prescribing and diagnostic and consultation skills is warranted before independent prescribing is undertaken by Scottish community pharmacists.<sup>221</sup>

### **2.7.13 How this literature review has helped to develop the third research question and derive the aim and objectives.**

It is therefore apparent that when this part of the research was developed there was not a lot of research available about patients' views upon pharmacists as prescribers. The interview schedule for the patient interviews was developed when the consultation for pharmacists and nurses becoming independent prescribers was published.<sup>55</sup> In this role extension, the pharmacist would be responsible for their own actions (which they are as a supplementary prescriber) and would be an autonomous healthcare professional, not needing to depend upon a medical professional for a diagnosis or support (other than if they need to refer the patient to another professional). It was hypothesized that this represented a much greater change for the public to accept and that some patients would have very strongly-held beliefs surrounding the acceptance of non-medical professionals in this new role. It was therefore important to attempt to establish what patients thought about the role extension and what their concerns were (if any) about the development as well. Concerns regarding the risks of the new development and how they would be minimised would be of great importance to the patient as well, and it would be useful to understand these issues from the patient's perspective.

If patients do have concerns that are not addressed, the uptake of non-medical prescribing will be affected and patients will not have the increased access to healthcare that is needed.

The use of qualitative research methods will provide a detailed description of the perceptions and beliefs that patients have, and how these inform their opinions on pharmacist and nurse independent prescribing.

This research will allow the identification of factors that affect these beliefs and therefore pharmacists and nurses will be able to tackle any misconceptions and barriers that patients may have.

#### Aim

*To investigate opinions of patients who have and haven't experienced supplementary prescribing by pharmacists on the development of pharmacists and nurses as independent prescribers.*



## Objectives

- To identify and describe patients' opinions of whether pharmacists and nurses should become independent prescribers, whether they are perceived to be capable of providing such a service, and whether the patients think they would utilize the service.
- To identify whether patient experience of pharmacists as supplementary prescribers affects their acceptability and opinion upon independent prescribing by pharmacists?
- To identify and describe factors that affect whether patients would rather utilise a nurse or a pharmacist independent prescriber, and if there are any preferences, what is the basis of this belief? How does patients' previous experience of contact with pharmacists and nurses inform this preference?
- To identify patients' perceived benefits of pharmacist independent prescribing.
- To identify patients' concerns about pharmacist and nurse independent prescribing and any perceived barriers to its development.

## **CHAPTER 3: METHODS**

This chapter presents the methodology used during this research. The methodology for each of the three separate studies will be presented one after the other.

### **3.1 NATIONAL SURVEY OF PHARMACIST TRANSCRIBING OF DISCHARGE PRESCRIPTIONS (SECONDARY CARE)**

#### **3.1.1 Selection of the survey tool**

A descriptive survey was used as the information is collected from the population of interest and descriptive measures are calculated. These surveys are also known as cross-sectional as the data is collected from the population of interest at one point in time.<sup>222</sup> Statisticians often refer to descriptive, cross-sectional surveys as observational research because phenomena are observed rather than tested, but this shouldn't be confused with observational research methods used by social scientists. It should be borne in mind that with these types of survey, it is not generally possible to draw conclusions about cause and effect from them.<sup>222</sup>

In order to be able to survey a large sample of secondary care trust chief pharmacists, principal pharmacists or clinical services managers (according to whose name could be found in reference sources<sup>223- 224</sup>) in the United Kingdom (UK) (n=234 hospital trusts), the only feasible survey method that could be used was a postal questionnaire survey as opposed to a telephone survey or focus groups.

Postal questionnaires have the advantage that a large sample of the population can be reached and that it is cost-effective as well.<sup>225</sup> Postal questionnaires do have disadvantages such as that closed questions do not allow the respondents to fully explain their opinions and that the respondents cannot be probed about their responses. Response rates tend to be lower as well when compared with for example, telephone surveys.<sup>225</sup> Furthermore, access to the sampling frame was relatively easy as hospital pharmacy departments could be identified in several publications (as discussed in sample selection section p113).

A telephone survey of such a large sample of people by one researcher would have been unfeasible within the time frame for the study. This is because of the time it would have taken to do the survey via telephone. Especially when you factor in

having to often speak to secretaries before speaking to the chief pharmacist, and having to phone back again if they are busy. Hence a questionnaire survey was deemed to be the most suitable method for the purposes of the data collection.

### **3.1.2 Sample selection**

In order to establish the baseline situation with regards to pharmacist prescribing, the questionnaire survey had to be sent to all acute hospital trusts in the UK (n=234). The total population of pharmacy departments was used, rather than a sample because the total number of pharmacy departments was not so large to have enormous resource implications. Surveying the whole population also negated any problems of sampling error or random error in subsequent statistical analysis. Primary care was not included as legally during 2001, they had no methods of pharmacist prescribing, and the literature review made it apparent that pharmacist clinics and reports of prescribing in other situations such as discharge prescribing were occurring in secondary care.

Individual hospitals from each trust were identified using a combination of the UK Drug Information Pharmacists' Group Directory<sup>223</sup> and the Chemist and Druggist Directory.<sup>224</sup> The questionnaire was sent to one hospital from each trust. The largest hospital in the trust was purposively chosen to send the questionnaire to where more than one hospital was within the trust. Some questions in the questionnaire asked about aspects of pharmacist prescribing across all of the trust. An assumption was made that the chief pharmacist of the largest hospital in the trust would be aware of pharmacist prescribing activities across all of the trust. Any hospitals that were found to have merged with another trust upon responding to the questionnaire were removed from the database.

### **3.1.3 Stages of questionnaire development**

Several stages of development of this questionnaire were utilised:

- Literature review
- In-depth unstructured interviews and field visits
- Questionnaire development for the purpose of piloting.

- Questionnaire adaptation and validation into a final version.

### **3.1.4 Questionnaire development –Literature Review**

Construction of the questionnaire was aided by literature review. The review elicited the pharmacist “prescribing activities” that had been reported from various hospitals. These included PDPTS, transcribing in-patient drug charts, various prescribing activities in pre-admission clinics (which often includes transcribing discharge prescriptions<sup>77-78</sup>) and prescription amendment policies.

These reported activities were used in the survey to ask pharmacy department’s whether they were involved in such activities.

Transcribing was one activity that had been identified from the literature review. For the purposes of this study, and in the absence of a recognised definition of transcribing, transcription was defined on the front of the questionnaire survey as “a process where a pharmacist copies a list of drugs that has been prescribed by a doctor from one chart to another chart or prescription”. In undertaking the act of transcription, there is an implied professional obligation on the pharmacist to review the prescribed medicines and act upon any errors and assure suitability for the patient.

### **3.1.5 Questionnaire Development- Field Visits**

From local knowledge of the hospital region, the researcher was aware that two local hospitals had developed a pharmacist discharge prescription scheme, which appeared to be the most commonly reported form of pharmacist prescribing that was being undertaken at the time, from the literature review. Pharmacists from these two local hospitals were therefore visited to inform the development of the questionnaire. Detailed notes were taken about the pharmacist discharge prescription schemes that they were running, and this was used to help develop the questionnaire, which focused upon this type of pharmacist prescribing, but also enquired about other types of pharmacist prescribing that had been reported in the literature.

The first four models of service that the PDPTS were based upon (as listed in Table 3 (p 145)) were established from these visits to two other hospitals that were running a pharmacist transcription service, and the other categories reported in Table 3 were from the results of the “other” option, which was examined for common themes.

### **3.1.6 Questionnaire Development- Piloting and Validity**

By using the findings from the field visits and literature review a questionnaire survey was developed for piloting.

In order to assess face validity of the questionnaire, chief pharmacists (n=2) were observed whilst completing the questionnaire and discussed any ambiguities that arose with the researcher (from hospitals with and without a PDPTS). These hospitals were chosen from the same region as the researcher was based for ease of travel. Although this process does not constitute full validation, face validity was further assessed in responses to the pilot questionnaire for both primary and secondary care.

The questionnaire was then piloted in 20 randomly chosen hospitals from Wales, Scotland, England and Northern Ireland in July 2001. Minor adjustments to the instructions for completing the questionnaire were made. Advice on data analysis was sought from a statistician. Data collected from the pilot questionnaires was not included in the final analysis. This was because some changes were made to the questionnaire after the piloting process was complete. For example, extra options were added into a couple of questions and also a question was added in about whether the pharmacy discharge service being offered had decreased out of hours and weekend work in the dispensary.

### **3.1.7 Final Postal Survey**

The questionnaire was distributed at the end of August 2001 to each NHS trust providing acute hospital services in the UK. The questionnaire contained a mixture of open and closed questions. Open-ended questions were kept to a minimum to keep the questionnaire as simple and concise as possible. The questionnaire was divided into five sections (see appendix 3, p367):

- Section A enquired about general demographic data
- Section B enquired about different prescribing roles being undertaken.
- Section C enquired about the extent of the service provision amongst those hospitals that offer a transcription service (i.e. directorates/wards covered and operating hours of the service), and the model of service used.

- Section D was about training issues (e.g. reassessment, types of training used)
- Section E aimed to quantify the service provided (e.g. number of prescriptions written/day/pharmacist, advance notice required).

Confidentiality was maintained by number-coding the questionnaires. The questionnaire was accompanied by a covering letter which emphasized that the questionnaire was confidential and anonymous to ensure respondents could be honest without fear of reprisal. This was intended to encourage a good response rate, as described by Oppenheim.<sup>225</sup> The covering letter also included recognised descriptions of independent and dependent (now supplementary) prescribing,<sup>11</sup> and the researcher's description of transcribing, in order to clarify the recipient's understanding of the different types of prescribing.

The covering letter was addressed to either the Chief Pharmacist, Principal pharmacist or Clinical Services Manager according to which person's name could be found in the reference sources used.<sup>223, 224</sup> The covering letter emphasized that the questionnaire survey ought to be completed by the pharmacist that manages the prescribing services on a day to day basis. The recipient was therefore instructed to pass the questionnaire onto the most relevant person to complete it (if it wasn't themselves). Clearly defining who should complete the questionnaire should have increased the reliability of the questionnaire. A freepost-addressed envelope was included for return of the questionnaire.

No deadline for completion of the questionnaire was stated on the questionnaire or covering letter, but non-respondents were followed up by a telephone call after 3 weeks and then again at 6 weeks. Further copies of the questionnaire were sent out to those who requested them. The final deadline for accepting returned questionnaires was 11 weeks after they had been originally posted. Information on deadlines was not included on covering letters with the questionnaires as it was thought that if the deadline was included it might deter some respondents from completing the questionnaire, if they think they have passed a deadline.

A total of 234 hospital pharmacy departments were identified, of which 20 were used for piloting the questionnaire, leaving 214 hospitals for the main study. Those pharmacy departments included in the pilot were excluded from the main survey to reduce the possibility of "survey fatigue" which may result in a poor response and

thus less accurate data. In addition, responding to the pilot questionnaire may have raised awareness of the issues covered and so population data may have changed. Eight of these hospitals were removed after it was established that they had merged with another Trust (this was discovered either by them offering this information amongst comments they made on the questionnaire, or by the researcher finding out themselves via further investigation), leaving 206 hospitals eligible for the study.

### **3.1.8 Management of Questionnaire Data**

Data obtained from returned questionnaires was coded and analysed with the Statistical Package for the Social Sciences (SPSS) version 10. The database was set up and data entry was performed by the researcher. Data entry was checked by the researcher using a “screen and clean”<sup>226</sup> process and the significance of the association between variables was assessed using chi-squared, Kruskal-Wallis and bivariate correlations (spearman’s rho), where appropriate.

### **3.1.9 Ethical Approval**

Ethical approval was not sought for this part of the research as it would not have been needed for a questionnaire survey of NHS staff at the time it was undertaken (August 2001).

## **3.2 IMPLEMENTATION, RISKS AND CONCERNS ABOUT SUPPLEMENTARY PRESCRIBING: SURVEY OF PRIMARY AND SECONDARY CARE PHARMACISTS**

### **3.2.1 Selection of the survey tool**

In order to be able to survey a large sample of chief pharmacists within secondary care and primary care trust pharmacists in England, the only survey method that could be used was a postal questionnaire survey as opposed to a telephone survey or focus groups, as discussed previously (section 3.1.1, p112 (phase 1 methods)).

### **3.2.2 Sample selection**

It was decided to only send the questionnaire survey to Chief Pharmacists and Primary Care Trust Pharmacists in England because although legislation permits the introduction of supplementary prescribing throughout the United Kingdom, Scotland Wales and Northern Ireland have to decide how they are implementing the model for the National Health Service in their own countries. Also, it was felt that the population sample for primary and secondary care in England was already a large sample to deal with. (n=424 in total, n=168 secondary care, n=303 primary care) Also, this sample would allow a national (England) description of supplementary prescribing implementation.

In order to be able to establish a list of every chief pharmacist from each NHS secondary care trust in England which provides acute hospital services a combination of the *Chemist and Druggist Directory*<sup>224</sup> and the Guild of Healthcare Pharmacists' chief pharmacist mailing list<sup>227</sup> were used. A random-number generator was used to randomly send a questionnaire to one hospital from each trust. This was done because an assumption was made that the chief pharmacist would have be aware of supplementary prescribing implementation across all of the trust sites, and hence would be able to answer the questionnaire on behalf of the whole trust.

For the questionnaire survey sent to the Primary Care Trust (PCT) pharmacist or pharmaceutical adviser, the PCTs and their pharmacists were identified using Medendium.<sup>228</sup>



### **3.2.3 Stages of questionnaire development**

Several stages of development of this questionnaire survey were identified:

- Literature review
- Policy making and academic pharmacists in England were identified and asked key questions (via e-mail or telephone) with respect to supplementary prescribing.
- Exploratory unstructured interviews to develop a more detailed perspective on the issues and risks surrounding supplementary prescribing.
- A focus group to more clearly define the key areas that the questionnaire should cover.
- Questionnaire development for the purpose of piloting.
- Questionnaire adaptation and validation for the final version.

### **3.2.4 An explanation of the research participants**

Pharmacists are employed by Primary Care Trusts (PCT) to control drug prescribing budgets. Some primary care pharmacists are entitled “pharmaceutical advisors” whose role also includes policy development. Most work with individual GPs to assist with drug audits and medication review. These pharmacists will have an important role in overseeing the development of supplementary prescribing within primary care trusts. Although implementation of supplementary prescribing by nurses will more than often be overseen by a different person within the trust such as a senior nurse, that person will need to liaise with the Chief Pharmacist (CP) or Primary Care Trust Pharmacist (PCTP) as these people have the expertise to advise upon issues such as medicines management and clinical governance concerning medicines and prescribing.

Liaison between these health professionals will also ensure that the patients are receiving the supplementary prescribing service from the most appropriate health care professional.

Therefore CPs and PCTPs will have an interest in the development of nurse prescribing within their trust (and vice-versa) and it is clear that development of

prescribing by non-medical health care professionals within a trust will benefit from input from both professions.

### **3.2.5 Questionnaire development- Literature Review**

Construction of the questionnaire was aided by literature review. A discussion of the literature found and its influence upon the development of the questionnaire can be found in the section entitled “How this literature review has helped to develop the second research question and derive the aim and objectives” (p105) and “Clinical Governance, risk and prescribing” (p 44).

### **3.2.6 Questionnaire development- Scoping exercise. Policy making and academic pharmacists’ opinions**

At first, it was thought that the questionnaire ought to be sent to clinical governance leads of trusts, to specifically ask about the risks and issues surrounding supplementary prescribing.

Opinion was therefore sought from several health care professionals with important roles with regards to non-medical prescribing in order to establish what they thought were the main issues regarding this role extension.

The people contacted were:

- David Cousins, Head of Safe Medication Practices at the National Patient Safety Agency (E-mail contact 19/2/03).
- Rachel Drago, a senior nurse lecturer who was involved in developing and teaching on a nurse supplementary prescribing course in Bristol (University of West of England) (E-mail contact and a meeting, 26/2/03).
- Beth Taylor, (manager of the community services pharmacy team at Southwark PCT and regional principal pharmacist, community care London/South East regions) who had been involved in piloting of supplementary prescribing. (via e-mail 30/10/02)
- Gul Root, the deputy to the Chief Pharmacist at the Department of Health (Telephone interview, 10/03/03).

Feedback suggested that the questions that were proposed for the questionnaire were too specifically process related and missed some of the bigger issues.

The following topics were suggested to be included in the questionnaire:

*What are the expected benefits of supplementary prescribing to:*

- *The patient*
- *The independent prescriber*
- *The supplementary prescriber*
- *The Trust*

*How will the implementation of the supplementary prescribing be evaluated?*

*What are the risks associated with the introduction of the supplementary prescribing regulations and how will they be managed and monitored?*

*Are the perceived risks associated with supplementary prescribers different and do they need to be managed differently?*

*What are the drivers of this level of change?*

*How they perceive clinical leads will react to and plan for these drivers of change?*

*How are clinical leads going to cope if no one wants to prescribe - force them?*

*Which grade of nurse would clinical leads expect to undertake prescribing and what incentives would they offer?*

*How would they tackle continuing education needs of pharmacist prescribers, alongside nurses?*

*Is it likely that trusts would have to choose to train and support nurses or pharmacists, rather than both i.e. will there be competition for support?*

*How will replacement costs for pharmacists be found whilst training?*

*Are the issues involved in pharmacist supplementary prescribers similar or differing from nurse supplementary prescribers?*

*What practical tools will be needed for both groups of supplementary prescribers for this to work in practice?*

These opinions that had been sought were used to aid the development of the questions to be used in the exploratory interviews.

### 3.2.7 Questionnaire Development- Exploratory Interviews

For the exploratory interviews, a list of questions was developed from the results of the scoping exercise and also after discussions with the supervisor as per appendix 6, p 407.

Three people were interviewed from one acute hospital trust as detailed below:

- Chief Executive, *Sonia Mills (Swindon and Marlborough NHS trust, 30/1/03)*
- Clinical governance co-ordinator, *Keith Todd (Swindon and Marlborough NHS trust, 30/1/03)*
- Clinical governance lead for the trust (who was also a consultant anaesthetist), *Dr Sean O’Kelly (31/1/03)*

The following issues were raised during these discussions:

- *Concern surrounding prescribing errors -any system that would improve safety of prescribing would be a big bonus for patients. So patient safety is paramount.*
- *Concern regarding poor communication between different health care professionals which could lead to lapses in patient safety and also fragmentation of roles, where there may be too many people involved in each patient’s care.*
- *There may be difficulty in actually “selling” supplementary prescribing to doctors, and getting trust board and individual consultants to agree to pharmacists and nurses prescribing in such a manner, as it represents such a major change in healthcare provision.*
- *How the development would be funded as people who have trained to extend their role in this manner will deserve an increase in their salary if they are taking on this extra responsibility.*
- *Concerns generally about responsibility, safety, practicality and training.*

After these discussions, it became clear that clinical governance leads did not have a lot of knowledge (if any) about the supplementary prescribing model, and had not previously considered the implications of non-medical practitioners being prescribers in the trust. It was therefore considered that if opinions were being sought from a group of people who had a general understanding of the detail of supplementary prescribing the questionnaire ought to be aimed at the people who would be more directly involved with implementing supplementary prescribing, which would be the chief pharmacists (CP) in secondary care.

Similar topics were discussed in face to face exploratory interviews with a nurse senior lecturer and a chief executive of a different hospital trust. These interviews were informal, one-to-one discussions. The interview with the chief executive confirmed the low level of awareness of this role development for non-medical practitioners, and the nurse lecturer was able to add a nursing perspective to the development.

Output from all of these exploratory interviews was used to aid the development of the topic guide for the focus group.

### **3.2.8 Questionnaire Development- Focus Group**

It was apparent that as the questionnaire would be better directed at chief pharmacists in secondary care, further development of the questions to be used in the survey was necessary. Therefore a focus group was arranged. The participants included a professor of pharmacy practice, a nurse senior lecturer who had developed a supplementary prescribing course, a chief pharmacist and a clinical governance leader (who was a surgeon).

A topic guide was derived for the focus group using literature review, results of the exploratory interviews that had been undertaken and after discussion with academic colleagues. The topic guide can be found in appendix 10, p 419.

The focus group discussed issues such as the risks and benefits of supplementary prescribing and its implementation, responsibility and accountability of supplementary prescribers and availability and quality assurance of designated medical practitioners. The focus group's discussions were audio taped and transcribed verbatim. Conceptual categories and themes for coding were derived directly from

analysing the interview material as well as from the ideas the author had whilst conducting and reviewing the focus group recording. From the focus group material, a list of main themes that were derived from the group was discussed with academic colleagues in order to establish the main topics that chief pharmacists should be questioned about in the survey (appendix 11, p 420).

Attitudes were surveyed using a series of statements compiled from the content of the focus group. Attitudes are complex and may incorporate several dimensions which cannot be covered with a single question.<sup>225</sup> Therefore, it was necessary to use a scaling approach in which individual statements were devised to measure different dimensions.

The attitude scale focused upon risks, concerns and limitations about supplementary prescribing that had been raised during the focus group.

Each statement contributed equally to the attitude scale. A five-point Likert scale from “strongly agree” to “strongly disagree” was used to grade respondent’s level of agreement with each statement.<sup>225</sup> Both positive and negative statements were included in the scale. According to convention, the high numbers indicated agreement and the scales were subsequently reversed for negative questions. Twenty-two attitude statements were used in section C for piloting. It was also decided at this point to extend the questionnaire to survey primary care as well, in order to establish whether the views of pharmacists in Primary Care Trusts differed to that of Chief Pharmacists in secondary care about implementation of SP and its risks and issues for pharmacists, nurses and patients within their sector. Therefore some of the questions were adapted slightly for primary care, but the majority of the questionnaire was the same as the secondary care questionnaire (see appendix 5, p 394).

### **3.2.9 Questionnaire Development- Piloting and Validity**

In order to assess face validity of the secondary care questionnaire, one Chief Pharmacist (CP) was observed whilst completing the questionnaire and discussed any ambiguities that arose with the researcher, and another CP completed the questionnaire and posted it back with written comments. Although this process does not constitute full validation, face validity was further assessed in responses to the pilot questionnaire for both primary and secondary care.

In order to validate the primary care questionnaire, one Primary Care Trust Pharmacist (PCTP) completed the questionnaire and provided feedback via the telephone and the other PCTP completed the questionnaire and provided written feedback. No changes were made to the questionnaire at this stage.

During February and March 2004, the secondary care questionnaire was piloted in 17 randomly selected hospitals from the sample (n=168).

At the same time, the primary care questionnaire was piloted in 30 randomly selected pharmacists from the sample (n=303). Participants were advised that it was a pilot questionnaire and were asked to make further comments if they felt it necessary to help improve any ambiguities in the questions or to suggest any topics that they thought should be asked about but were not covered by the questionnaire. Several amendments were made to the questionnaire after piloting.

For section C of the secondary care questionnaire, 8 attitude statements were removed upon piloting as review and discussion with the supervisor indicated that they were asking factual questions rather than about respondent's attitudes. Other statements removed were statements where all respondents would naturally agree with them. Overall, statements were removed as they did not enquire about the respondent's attitude towards supplementary prescribing.

Also, one new question was added after open comments on the returned questionnaires suggested that it would be useful to ask whether chief pharmacists were waiting for independent prescribing to be introduced rather than training their pharmacists as supplementary prescribers. Therefore 17 attitude statements were left in the final questionnaire section C.

For section C in the primary care questionnaire, there were four questions that needed to be removed once piloting had been conducted because they didn't work well as attitude statements. One question was converted to an open question as it was felt that it wasn't a statement that you could either agree or disagree with and was instead multi-faceted which required an open response.

For the rest of the questionnaire, some questions were removed which upon review with the supervisor were deemed to not be providing useful information and their inclusion would also have made the questionnaire less concise. Some questions also had extra options added or removed from them. Therefore, data collected from the

pilot questionnaires were not included in the final analysis as the final version of the questionnaire that was used was significantly revised.

### **3.2.10 Final Postal Survey**

Following piloting, a total of 151 hospital pharmacy departments were included in the main study. Eight of these hospitals were removed from the study after it was established that they had merged with another trust or were not an acute trust, leaving 143 hospitals for the study.

For primary care, after piloting, 273 primary care trusts were included in the main study. Two of these trusts were removed from the study after it was established that they were not a primary care trust or did not have a pharmacist employed as a pharmaceutical advisor. This left 271 primary care trusts eligible for the study. Therefore, a total of 414 primary and secondary care sites were sent questionnaires.

Both questionnaires were distributed in May 2004 (see appendix 4 and 5 for copies of the questionnaires). The secondary care questionnaire was posted to CPs within every NHS trust in England providing acute hospital services. Responding hospitals which had merged with another trust were removed from the study.

The primary care questionnaire was sent to the named Primary Care Trust Pharmacist (PCTP)/pharmaceutical advisor within each primary care trust (a questionnaire was not sent to the primary care trust if they did not employ a pharmacist. –If the reference source Medendum<sup>228</sup> did not have a named pharmacist for the trust in question, the trust was telephoned in order to confirm whether there was a pharmacist employed by them or not) in England.

The questionnaire was sent to a named chief pharmacist or primary care trust pharmacist (PCTP) in order to achieve a good response rate.<sup>229</sup>

The questionnaire contained mostly closed questions. Open-ended questions were kept to a minimum to keep the questionnaire as concise as possible.

The questionnaire was divided into three sections as follows:

- Section A inquired about demographic data about the respondents and their trust using closed questions.



- Section B inquired about the implementation of supplementary prescribing within the trust. It contained mostly closed questions and one open question about recruitment of designated medical practitioners.
- Section C used Likert scales in order to measure the respondent's attitude to a number of statements about supplementary prescribing. In total there were 17 attitude statements in the final questionnaires (appendix 4 and 5)

The questionnaires were accompanied by a covering letter to explain the study and a freepost envelope was included for return of the questionnaire. Confidentiality was maintained by number-coding the questionnaires. The covering letter emphasized that the questionnaire was confidential and anonymous to ensure respondents could be honest without fear of reprisal. This was intended to encourage a good response rate.<sup>225</sup>

Follow-up was via a second mail shot to non-responders after 3 weeks, and then a telephone follow up after a further 4 weeks (secondary care) or another questionnaire mail shot (primary care). After a further 3 weeks a last mail-shot of the questionnaire was sent out to any remaining non-responders. A final deadline for accepting returned questionnaires was set at 13 weeks after the questionnaires had originally been posted. The larger sample size in the primary care group required the use of postal (rather than telephone) follow up.

In the questionnaire, the chief pharmacists were asked whether they intended to implement supplementary prescribing by the end of 2005. This date was chosen in order to be able to assess how quickly supplementary prescribing was going to develop.

### **3.2.11 Management of Questionnaire Data**

Data obtained from returned questionnaires were coded and analyzed using the Statistical Package for the Social Sciences (SPSS) version 11. The database was set up and data entry performed by the researcher. Data entry was checked by the author using a "screen and clean" process.<sup>226</sup>

### 3.2.12 Analysis of Questionnaire Data

#### 3.2.12.1 Section A & B Quantitative data

The significance of the association between variables was assessed using the non-parametric tests chi-squared, Kruskal-Wallis, Mann-Whitney U and bivariate correlations (Spearman's rho), where appropriate (the data was not of a normal distribution to enable parametric tests to be used). Advice from a medical statistician was obtained.

The data was also analyzed by region/strategic health authority that the hospital or primary care trust (PCT) was from in order to assess whether there were any poor responses from particular regions.

#### 3.2.12.2 Section C Attitude Scale

##### *3.2.12.2.1 Assessment of range of responses and plotting of scores for statistical normality*

Firstly, the frequency of responses to each statement was assessed to determine if any questions were avoided by many respondents (i.e. redundant). Also, the responses were assessed in order to establish whether there was a spread of opinion, as would be expected in a normal population, and hence the questions were discriminating between respondents.

A total score was calculated for each respondent by reversing positive statements then totaling the score for each statement (-2 strongly agree to +2 for strongly disagree). Total scores were plotted for each respondent and the normality of the distribution assessed.

##### *3.2.12.2.2 Reliability of Attitude Scale*

Reliability is the extent to which a measure (the attitude scale) produces the same measurement in the same individual at different points in time. Reliability of the survey tool could not easily be tested (test-re-test reliability) as it would produce survey fatigue if re-tested in the same, limited, population.<sup>225</sup>

Since attitudinal questions are more sensitive than factual questions to changes in wording, context, emphasis etc. it becomes impossible to assess reliability via asking the same question in another form- it will no longer be the same question. Sets of

questions are more reliable than single opinion items -they give more consistent results (as there are more questions asking about the same attitude). The underlying attitude will be the same in all items in a set or scale.

It is difficult to assess validity of attitude questions due to the lack of criteria. One would need groups of people with known attitude characteristics to see whether a question distinguishes between them. E.g. members of a political party- However, people join groups for different reasons therefore membership of a group is not necessarily a reflection of inner attitude.<sup>225</sup>

However, the reliability of section C can be tested via the internal consistency method. This assesses the extent to which similar items (attitude statements) gave consistent responses. Determination of Cronbach's Alpha is used via this method to give the overall correlation between items within the scale. A reliability coefficient of 0.7 or above is recommended,<sup>226</sup> which would imply that seventy per cent of the measured variance is reliable and thirty per cent is owing to random error.

The other measure of internal consistency used was the item-total correlations. This measure compared scores on individual statements with the total score of the scale. Statements were considered for rejection if their item-total correlation was below 0.3.<sup>226</sup>

Factor analysis was used to explore the relationships thought to exist between the items in section C of the questionnaire and to assess the degree to which items were measuring the same concept. This is an assessment of psychometric validity. For respondents to be given a single score to represent their attitude towards supplementary prescribing, the scale must be uni-dimensional for this score to be a valid representation of their attitude. Factor analysis is a statistical tool to enable the detection of underlying dimensions (factors) in a set of responses, in this case, responses to all the attitude statements.<sup>225</sup> Factor analysis was undertaken using the Statistical Package for the Social Sciences (SPSS) version 11. The factor analysis is conducted in a series of steps. Firstly, factors are identified and the size of each factor is represented by an "eigen value". A factor is only included if its eigen value is greater than 1. A factor matrix is then produced which indicates which factors occur in which responses. Factors are represented by an arithmetical figure called a factor loading. Factors at this stage are still arbitrary and lack meaning so the computer programme conducts a process called rotation which calculates statistical results from

different angles until an “angle” is found in which results are most meaningful. Advice was sought from a medical statistician and colleagues that had undertaken factor analysis before in order to ensure the best angle was found for the data at this stage.

Principal components analysis (PCA) was used as the method of extracting the factors from the item population. The extracted factors were rotated obliquely using the direct oblimin method, interpreted and tested for internal reliability.<sup>230</sup>

Therefore, attitude statements were included in the final attitude score if they met the following criteria:<sup>226</sup>

- The item-total correlation was greater than 0.3
- No individual response category was selected by >80% of respondents
- The factor loading for the hypothetical factors was greater than 0.4
- The Cronbach alpha of the final score was >0.7

The significance of the association between the factors themselves and between the factors and responses to certain questions in sections A and B of the questionnaire was assessed using the non-parametric tests chi-squared, Kruskal-Wallis and bivariate correlations (Spearman’s rho), where appropriate.

### **3.2.13 Ethical Approval**

Ethical approval for the study was obtained from the south-west multi-centre research ethics committee (MREC) (Ref no: MREC/03/6/76) for the secondary care questionnaire survey and from the Eastern MREC (Ref no: 04/5/002) for the primary care questionnaire survey (approval letters in appendix 2, p354).

Research and Development (R&D) approval was not necessary for this study.

### **3.3 PATIENTS' VIEWS AND OPINIONS OF PHARMACISTS AND NURSES AS INDEPENDENT PRESCRIBERS**

Qualitative, semi-structured interviews with patients were undertaken in four NHS trusts. The therapeutic areas were pre-determined by the area that the recruited pharmacist supplementary prescribers worked within. These four sites were used to interview four different groups of patients:

- Primary care, normal GP care (Hypertension) *Site 1*
- Secondary care, normal consultant care (Oncology) *Site 2*
- Primary care, supplementary pharmacist care (Hypertension) *Site 3*
- Secondary care, supplementary pharmacist care (Oncology) *Site 4*

#### **3.3.1 Recruitment of sites**

In order to recruit a supplementary prescriber pharmacist in primary and secondary care, a letter was forwarded to the director of postgraduate studies at the University of Bath which ran an accredited supplementary prescribing course for pharmacists. The Director of Postgraduate Studies, Department of Pharmacy & Pharmacology forwarded the letter to all those pharmacists who had completed (or were nearly finished) the supplementary prescribing course (in order for their names to remain anonymous to the researcher). This letter explained the study that was being undertaken and asked anyone that was interested in participating to contact the researcher. From this letter, one supplementary prescriber (SP) from primary and one from secondary care expressed an interest in participation. The primary care supplementary prescriber specialized in the clinical area of hypertension (site 3) and the secondary care prescriber specialized in the area of oncology (site 4). The primary care pharmacist was already running a hypertension clinic but needed the doctor to co-sign her prescriptions until she qualified. The pharmacist supplementary prescriber from secondary care was about to qualify and was setting up her clinic. As recruitment occurred approximately 4 months before any patient interviews were due to start, it was envisaged that the pharmacists should be qualified and running their clinics by the time that the patient interviews were due to start.

However, when it was near to the time that patient interviews were due to start at site 4, the pharmacist SP had to pull out of the study as she had many problems setting up her clinic and wasn't actually running her clinic when recruitment of patients was necessary.

It was therefore necessary to recruit another pharmacist SP in the clinical area of oncology and so colleagues were asked to pass onto the lead researcher any contact names of people who may be able to help. A colleague found an oncology pharmacist SP at a hospital and approached them about the study. The pharmacist oncology SP then contacted the researcher to express their interest in the study.

Once these two sites had been recruited, the sites where "normal doctor care" occurred could be recruited. As the researcher is employed by an acute secondary care trust, the intention was to recruit an oncology consultant from this trust to allow the researcher to interview their patients. A letter explaining the study was forwarded to the oncology consultants within the trust by the oncology pharmacist on the behalf of the lead researcher. A consultant expressed an interest in participating in the study, and allowed permission for the lead researcher to interview some of her patients (site 2).

In order to recruit a GP practice with patients suffering from hypertension, a list of research practices in Bristol (the Bristol area was chosen for convenience) that get paid to take part in and host research projects (Avon PCT consortium) was used to send a letter explaining the study (see appendix 13 for this list. -This list was obtained from a Bristol GP who was an associate of a member of staff within the pharmacy and pharmacology department, University of Bath). A GP from this sample contacted the researcher, expressing an interest in participation (site 1).

### **3.3.2 Inclusion and Exclusion Criteria**

The patients that were selected for possible recruitment to the study needed to be medically fit enough in the prescriber's opinion to:

- i.) Give informed consent
- ii.) Undertake an interview that will take up to an hour.

The principal exclusion criteria for the study were:

- Patients under 16 years of age (Patients under 16 years of age will not be chosen to interview due to added difficulties of obtaining parental consent).
- Those suffering from dementia or mental illness which affects their ability to give informed consent and participate in this research. (as assessed by their pharmacist SP or GP/consultant)
- Those patients identified by the supplementary prescriber or doctor as being medically unfit for interview. (e.g. patients with end stage Chronic Obstructive Pulmonary Disease (COPD))

### **3.3.3 Patient Recruitment**

It was anticipated that up to 20 patients in total would be interviewed (5 from each site), although the precise number would depend upon the extent to which the relevant themes have been saturated within the context of the study's objectives.

It was decided to recruit and interview patients from the sites where "normal doctor care" occurred first of all, as there might be interesting comments made that may lead to new lines of questioning in the interview schedule (as per Interpretative Phenomenological Analysis (IPA) methodology allows) for those patients who have consulted a pharmacist supplementary prescriber. Also this allowed extra time for the two pharmacist SPs to get their clinics established.

The GP practice where patients with hypertension were going to be recruited (site 1) prepared a list of all patients being treated for hypertension under the care of the GP who had given consent for the study to go ahead in his surgery. The GP was asked to look at the list of patients that was generated and remove any patients that were unsuitable for interview as per the inclusion and exclusion criteria outlined above. An electronic random number sampler was used to generate a sample of 30 patients that a recruitment pack would be sent out to in order to generate approximately 5 patients for interview. Patients that were interested in participating returned an expression of

interest form, including any communication requirements they had (such as being hard of hearing or not speaking fluent English) back to the lead researcher with their contact details. The lead researcher then contacted them on a first come first served basis to arrange a suitable interview date and time. The patients were interviewed at the GP surgery.

For the patients under “normal doctor care” at the hospital (site 2), a secretary of the consultant who had given permission for her patients to be interviewed prepared a list of patients that the consultant was currently seeing for regular appointments. The consultant then asked the oncology specialist nurse to go through the list and remove any unsuitable patients who were too ill to be interviewed. An electronic random number generator was then used to produce a random sample of 30 patients that a recruitment pack would be sent out to in order to generate at approximately 5 patients for interview. The rest of the recruitment was arranged as previously and all patients were interviewed in the oncology outpatients department of the hospital.

For the patients under the care of the pharmacist supplementary prescriber in hypertension (site 3), the pharmacist was asked to generate a list of the patients they had seen, remove any patients that were unsuitable for interview (as per inclusion and exclusion criteria) and use an electronic random number generator that was supplied to them in order to produce a random list of approximately 30 of their patients, who they would send a patient recruitment pack to. Recruitment occurred as explained above and the patients were interviewed at the GP practice where the clinic is held.

For the patients under the care of the pharmacist supplementary prescriber in oncology the same recruitment methodology was used as per site 3. The patients were interviewed at the education centre of the hospital.

At this new site, the pharmacist supplementary prescriber had only prescribed for n=12 patients, therefore recruitment packs were distributed to all of these patients.

### **3.3.4 Interview Schedule Development**

The semi-structured interview schedule (Appendix 14, p429) was developed by using literature review, textbooks on qualitative interview techniques and methodology,<sup>231</sup>



<sup>232</sup> and discussion with pharmacists and other researchers experienced in using qualitative research methodology. Suggestions were made in order to improve the flow, structure, content of the interview and to ensure the schedule was collecting data of interest.

#### 3.3.4.1 Piloting

In order to pilot the interview schedule and allow the researcher to practice her interview technique, pilot interviews were held with two patients who were known to the pharmacy practice research group to be interested in participating in research (One of these patients had hypertension).

These interviews were transcribed verbatim and coded and analysed using the QSR NUD\*IST VIVO (N-Vivo) version 2 software in order to practice using the software with real data. Piloting was undertaken to test how long the interview took, the researcher's interview technique and would also allow for any topics that had not been included to be added if necessary. Small amendments were made to the schedule after the interviews in order to improve the flow and structure of the interview, but no further topics arose and the length of the interview was considered satisfactory.

The pilot interviews were not used in the final data analysis.

#### 3.3.4.2 Training

The lead researcher attended a course on interview techniques for qualitative interviewing and also a course on the use of the software tool QSR NUD\*IST VIVO (N-Vivo) version 2 in order to proficiently use the software to input and analyse the data generated.

#### 3.3.4.3 Conduction of the interviews

Immediately prior to interview the researchers ensured that the participants were clear about the purposes of the research, by discussing the patient information sheet with them, and allowing them to ask any questions they had. The participants were reassured that their anonymity would be maintained and were asked to sign a consent form, on which they agreed to participate in the research and to the audio tape recording of the interviews.

The length of the interviews varied depending on how talkative the interviewee was. Precise times were not noted however times approximately ranged from 20 minutes to an hour. The quality of the data not only depended upon the length of the interview but also how articulate the participant was.

The interview schedule was not followed in a rigidly structured manner and some topics were covered as they arose in order to keep the interview informal and to maintain the flow of information. However, all topics on the interview schedule were covered, except for one interviewee who had to leave on time for his hospital appointment.

#### 3.3.4.4 Content of the Interviews

The interviews investigated the following issues:

##### *Background of relationship with pharmacists and nurses*

- Participant opinion of pharmacists and nurses and their understanding of their role and training that they undertake
- Perceptions and experience of consulting pharmacists and nurses

##### *Development of non-medical prescribing*

- Perceptions of the development of non-medical prescribing *i.e. Is it necessary? Is it viewed as appropriate and useful? What impact could it have on healthcare provision? How could safety be maintained? Do they think pharmacists and nurses capable of diagnosis and prescribing (in terms of knowledge and expertise)?*
- Would they would be happy to utilize such a service?

##### *Nurses versus Pharmacists*

- Would patients rather be seen by a particular profession and why?
  - Issues such as access to medical records, responsibility for the prescribing and diagnosing, need for physical examination as part of the consultation and informed patient consent will be discussed and

any differences of opinion they would have according to whether they are consulting a nurse or a pharmacist.

#### *Benefits of pharmacist and nurse independent prescribing*

- Perceptions of the benefits of pharmacist and nurse independent prescribing
  - Will it increase access to healthcare for patients?

#### *Concerns and barriers to the development of pharmacist and nurse independent prescribing*

- Opinions on the barriers to development of pharmacist and nurse independent prescribing and their concerns in terms of issues such as clinical governance and training (These issues were explored in terms of whether they thought the system would be a “safe” one for patients and how they thought the performance of the non-medical prescriber would be assessed and how the non-medical prescribers ought to keep up to date)

#### *For those who had experienced supplementary prescribing:*

- Describe their experience of consulting a pharmacist supplementary prescriber
- Has the experience influenced their opinions of pharmacists becoming independent prescribers? If so, in what way?

### **3.3.5 Analysis of the interviews**

#### **3.3.5.1 Transcribing recorded interviews**

All interviews were audio tape recorded and were then professionally transcribed. The researcher then checked the transcription by listening to each tape whilst reading the transcription. At that time, minor alterations were made such as adding or correcting words that the transcriber had not heard correctly and correcting any typing errors.

#### **3.3.6 Analysis Method**

Interpretative Phenomenological Analysis (IPA) was the methodological approach used in this part of the research. IPA is concerned with the experiences of small

homogenous groups and not with looking for variations and extremes, as in grounded theory.<sup>233</sup> As such, it does not attempt to produce an objective statement. The overall aim of IPA is to translate the themes into a narrative account, highlighting the relevant parts.<sup>233</sup> This approach also recognizes that the data collection is a dynamic process.<sup>231</sup>

IPA is also used where it is recognised that the researcher will influence interpretation of the data due to their background. So this theory allows for the bias that can be introduced by the fact that the researcher is a pharmacist. (It should be noted however, that the patients were introduced to the person undertaking the interviews (and in letter explaining the study) as a researcher rather than a pharmacist)

Data analysis was undertaken concurrently with data collection and systematic efforts to check and refine developing categories of data.

Themes and hypotheses that were identified in early interviews informed questions in later interviews. For example, extra prompts were added into the schedule to allow fuller discussion of topics. Examples include: Do pharmacists in primary and secondary care have the same qualifications? Who do you have the better relationship with out of nurses, pharmacists and doctors? How would your doctor know what had been prescribed for you by the non-medical prescriber? Would there be demand for non-medical prescribing?

The analytic process was both descriptive and explanatory.

Identification of themes and patterns and the application of codes require some interpretation of the meaning of the data. As a validity check on these interpretative processes, the findings were discussed with a health psychologist. This offered a different insight into the data. Identification of themes was also undertaken in consultation with the health psychologist and the PhD supervisor.

The account provided is the researcher's interpretation of the narrative, and therefore could be interpreted differently by another person. However, the verbatim extracts provide evidence to support the thematic account and their inclusion hence provides a means of validation.<sup>233</sup>

Extrapolating conclusions from qualitative data should be undertaken cautiously as the sample is not large and not drawn randomly. Instead it is chosen purposively to elicit interesting and varied responses from the interviewees.<sup>234</sup> Suggestions can be made as to what affect the attribute has upon the participant's opinions but this cannot

then be generalized to the whole population. Qualitative research does not aim to generalise but instead, aims to explain. It can be used to generate data to form the basis of quantitative assessment or to explain/understand views of a group to inform further policy or practice development. It can also be used to inform further qualitative work.

### **3.3.7 Coding interview data**

Preliminary analysis began with an examination of individual transcripts using the qualitative data indexing software package, QSR NUD\*IST VIVO (N-VIVO) version 2, to help analyse the interview data into themes. N-VIVO allows large amounts of qualitative data to be reorganised to facilitate interpretation. Each transcript was coded. The coding system used was based around the topic guide headings with additional codes for commonly occurring topics. Each interview was coded on screen by reading the manuscript and applying the appropriate code using the N-VIVO programme.

### **3.3.8 Analysis of interview data**

N-Vivo places all statements with the same code into a separate file so that you can either consider the comment as part of the interview it came from or with other comments from other interviews that have the same coding. Analysing all comments within the same code allows themes to be identified, which are gradually refined and renamed as patterns in the words and phrases began to emerge which are common to participants discourses. After this initial sorting of the data into themes, the themes were written onto cards and placed onto a large white board so that further analysis could be undertaken using input from the health psychologist and the research supervisor. This helped to refine the themes into the final data set presented.

### **3.3.9 Post-analysis**

During the interview, participants were informed that when the research was finished, they could have a copy of the final report arising from the research work, if they so wished. Those participants expressing an interest were asked for details of where to send this information, which was stored separately from participant codes.

### **3.3.10 Ethics approval**

Ethics approval was sought and obtained for the patient interviews from the Essex 1 Research Ethics Committee (REC ref no: 05/Q0301/39) (See appendix 2, p 354 for copy of approval letter). Research and development approval was then sought from each hospital or primary care trust where a prescriber had indicated an interest in participating in the study. An honorary contract was also sought and obtained for each trust site other than the hospital site where the lead researcher was employed.

## **CHAPTER 4: RESULTS**

### **4.1 NATIONAL SURVEY OF PHARMACIST TRANSCRIBING OF DISCHARGE PRESCRIPTIONS (SECONDARY CARE)**

#### **4.1.1 Response rates and demographics of respondents**

Of the 206 hospitals, responses were received from 135 hospitals, giving a response rate of 66%. Of these, 68% (n=92) of responses came from District General hospitals, 27% (n=37) from teaching hospitals and 4% from tertiary referral centres (n=5).

The questionnaire was completed by clinical pharmacist/managers (26% n=35), Chief Pharmacists (26% n=35) Principal Pharmacists (25% n=34), Pharmacy Managers (7% n=10), Deputy Chief Pharmacists (5% n=7), MI manager/pharmacists (4% n=5), Discharge services pharmacists (4% n=5) and one interface pharmacist (1%).

The size of the hospitals varied, with bed sizes ranging from less than 100 to >1500, with the most common range being 401-600 (33% n=44).

#### **4.1.2 Prescribing activities**

##### **4.1.2.1 No prescribing activity**

Hospitals with no pharmacist prescribing comprised the largest group of respondents (n=59, 43.7%).

##### **4.1.2.2 Pharmacist Discharge Prescription Transcription Services (PDPTS)**

36% (49/135) of hospitals were currently offering a pharmacist discharge prescription transcription service.

20/135 (15%) of departments reported that they transcribe in-patient drug charts. The majority of department's that re-write in-patient drug charts also transcribe discharge prescriptions (17/20, 85%).

##### **4.1.2.3 Prescription amendment policy**

The second most common pharmacist prescribing activity was prescription amendment (n=39/135 29%) via a policy whereby the pharmacists can follow agreed

protocols to change timings and frequencies of drugs or change a non-formulary drug to a formulary alternative within the same pharmacological class.

#### 4.1.2.4 Pre-admission clinics

24/135 (17.8%) of departments reported that they performed prescribing roles in pre-admission clinics. 20/135 (14.8%) departments stated that they had pharmacists that wrote patient's normal medication onto drug charts. 12/135 (8.9%) departments reported that they prescribed medicines onto a drug chart at pre-admission clinics according to set protocols including (e.g.) analgesia, antibiotics, Venous-ThromboEmbolic (VTE) prophylaxis, and 8/135 (5.9%) departments prescribe discharge medication at pre-admission clinics according to set protocols. 6/135 (4.4%) departments performed 2 of these roles and 5/135 (3.7%) departments performed 3 of these roles.

#### 4.1.2.5 Other prescribing

The most common "other" form of pharmacist prescribing that was reported was in anticoagulant clinics (n=13, 9.6%), and total parenteral nutrition (TPN) prescribing (n=4, 3.0%). Four hospitals reported that they have pharmacists that independently prescribe (before Independent Prescribing was legalized) however, upon follow-up, only one of these hospitals did have a pharmacist that independently prescribed. This hospital was involved in a pilot study commissioned by the Department of Health, where a specialist TPN pharmacist was independently prescribing TPN for patients that were referred to her as part of the nutrition team. Other pharmacist prescribing included chemotherapy, in cardiac rehabilitation clinics, migraine clinics, any Pharmacy (P) medicines and medicines that the patient had been taking before admission.

### 4.1.3 Future Plans

Of the departments not offering a pharmacist discharge prescription transcription service (PDPTS), 41.9% (n=36/86) indicated that there had been discussions about pharmacist transcribing, but no decision made as yet. 33.7%, (n=29/86) indicated that there were no plans for such a development, and 22.1% (n=19/86) said that they were currently developing such a service. (2= missing data)



Eleven of the departments who said they were implementing a transcription service intended to implement the service in 2002, and 2 departments intended to implement the service in 2003 (5= missing data). One department intended to implement the service during December 2001.

Of the 86 non-transcribing hospitals, 59/86 (68.6%) undertake no prescribing activity (Range= 0 to 3 prescribing activities). Transcribing hospitals offer a wider range of prescribing activities (Range= 1 to 8 prescribing activities).

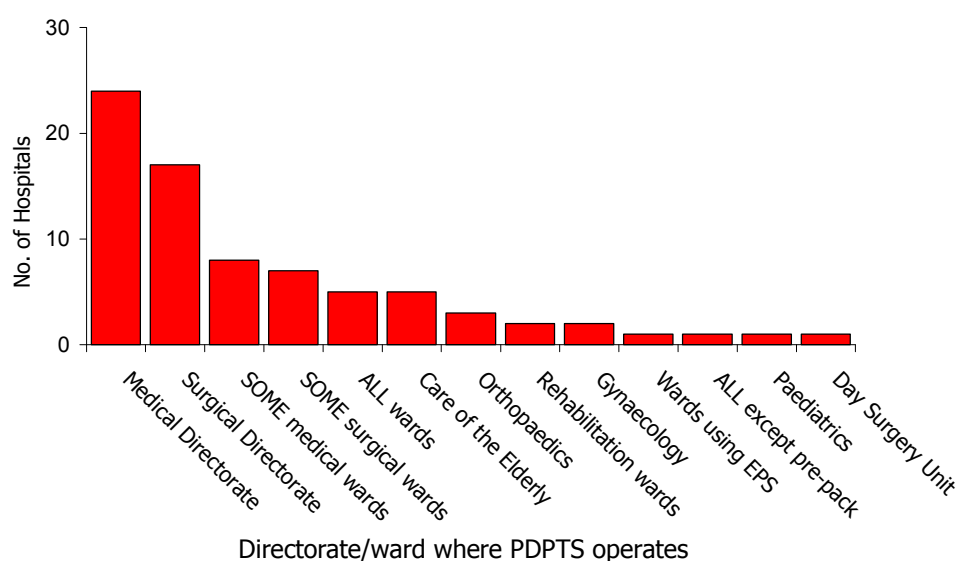
A weak relationship was found between the total number of pharmacists employed per hospital and the total number of prescribing activities undertaken (Spearman's rho correlation coefficient= 0.208,  $p= 0.018$ ).

#### 4.1.4 Prescribing systems

Asked when the pharmacy departments started their transcription service, one hospital stated that they have been running such a service since the 1980's; all of the other hospitals that had a PDPTS had started the service between 1995 and 2001.

The majority (68.1%  $n=32/47$ ) only operate the service during normal working hours Monday to Friday. A few other hospitals had extended to weekend, or evenings but this was an exception.

The wards/directorates in which the PDPTS was offered is illustrated in figure 3 below.



**Figure 3:** Directorates/wards where PDPTS operates. ( $n=49$ )

The most common directorate to have a PDPTS was the medical directorate with 51% (n=24/47) of hospitals running the service within this directorate. The next most common directorate was the surgical directorate 36% (n=17/47), followed by parts of these directorates, and care of the elderly. Only 11% (n=5/47) of hospitals had rolled out the service to ALL wards, plus one hospital provided the service to all wards minus those wards that stocked pre-packed drugs. One hospital operated PDPTS only in those wards where an electronic prescribing system (EPS) was in place.

The pharmacy departments mainly funded the PDPTS (58% n=28/48). Some services were funded by the medical and/or surgical directorates (23% n=11/48) and some have received trust monies into the pharmacy budget (8% n= 4/48).

The number of pharmacists providing PDPTS per hospital ranges from 1 to 89 (whole time equivalent). (Mean=8, Median= 5, Mode=2, 25% percentile= 2, 75% percentile=10). The total number of pharmacists per department that provides PDPTS ranges from 7 to 102 (Mean=19, Median=16, Mode=9). The percentage of pharmacists involved in PDPTS per department ranges from 3% to 100% (Mean=39%, Median=33%, Mode=33%).

The model that the PDPTS is based upon is illustrated in Table 3 (p 145). The total is greater than 49 as some respondents ticked more than one option for this question. The most common model used was the ward pharmacist model (78%, n=38/49) in which pharmacists transcribe the discharge prescriptions for their own ward.

<b>Model</b>	<b>Frequency (%)</b>
Ward Pharmacist model	38 (78)
Medical pharmacist attends whichever ward within the medical directorate bleeps them.	8 (16)
Surgical pharmacist attends whichever ward within the surgical directorate bleeps them.	4 (8)
Pharmacists attend whichever ward bleeps them	3 (6)
Ward model plus only at specific times/Ward Round	2 (4)
Ward model plus odd prescriptions written in pharmacy	1 (2)
Ward model plus urgent bleeps	1 (2)

**Table 3:** *Model of PDPTS in use. (n=49)*

The majority of departments (79% n=37/47) reported using paper-based prescriptions for PDPTS. Nine departments have pharmacists producing prescriptions on electronic prescribing systems (Computer-generated prescriptions (n=6), paper and computer (n=3)).

Table 4 illustrates how many discharge prescriptions a pharmacist transcribes per day. The majority of pharmacists are writing less than 5 prescriptions per day (52% n=25), 35% (n=17) are writing 5-10 prescriptions per day.

<b>No. of prescriptions/day</b>	<b>Frequency (%)</b>
<5	25 (52)
5-10	17 (35)
11-15	3 (6)
16-20	2 (4)
26-30	1 (2)
<b>Total</b>	<b>48 (100)</b>

**Table 4:** *Number of pharmacist-written prescriptions / pharmacist / day. (n=49)*

The advance notice required to produce a pharmacist-written discharge prescription is shown in Table 5.

<b>Advance notice required</b>	<b>Frequency (%)</b>
Less than 1 hour	16 (33)
No rule as such	13 (27)
1-2 hours	6 (13)
Only written whilst pharmacist is on the ward	6 (13)
24 hours	6 (13)
3-4 hours	1 (2)
<b>Total</b>	<b>48 (100)</b>

**Table 5:** *Advance notice required to produce a prescription (n=49)*

#### **4.1.5 Training**

Training requirements for pharmacists who transcribe discharge prescriptions were explored. Table 6 illustrates that the most common training requirement was the completion of an in-house training programme (55% n=27), followed by designation by a senior pharmacist (31% n=15), and then possession of a clinical diploma (20% n=10). The total is greater than 49 as some respondent's ticked more than one option for this question.

<b>Training</b>	<b>Frequency (%)</b>
In-house training programme	27 (55)
Designation by senior pharmacist	15 (31)
Clinical diploma	10 (20)
Clinical certificate	8 (16)
2 years ward experience	7 (14)
No further training	7 (14)
MSc in clinical pharmacy	1 (2)
3 years ward experience	1 (2)
At least 1 year of diploma completed	1 (2)
Clinical diploma or 3 years experience	1 (2)
Training programme in development	1 (2)

**Table 6:** *Training required for pharmacists to transcribe. (n=49)*

Of the eight departments that had a formal training programme for PDPTS (1=missing data), five departments used tutorials, seven departments used observation, seven departments used supervision, and four departments used an examination (some hospital pharmacy departments used a combination of techniques). Of the 11 departments that did assess competency to transcribe, four did this via non-ward based training/assessment, four departments did ward-based assessment and 1 completed an annual competency review (2= missing data).

Frequency of re-assessment of competency of the pharmacists who were transcribing is illustrated in Table 7.

Frequency of reassessment	Frequency (%)
Not reached a decision	22 (48)
Never reassess	15 (33)
Once every 2 years	3 (7)
On-going assessments	3 (7)
Twice a year	2 (4)
Once a year	1 (2)
<b>Total</b>	<b>46 (100)</b>

**Table 7:** *Frequency of reassessment of pharmacists providing a PDPTS. (n=49)*

The nine departments that did undertake some form of re-assessment were asked how they did this. Three departments used observation, two departments used a total competency assessment programme, and one department used supervised transcription of discharge prescriptions, one department used an examination, one department used on-going assessment via an intervention programme, and one department completed an audit of completed prescriptions prepared by the pharmacist.

#### **4.1.6 Responsibility and accountability**

Although the majority of hospitals operating PDPTS had a formal protocol for the service in place, (57 per cent, n=27), a substantial number did not have a protocol in place (43 per cent, n=20) however, 6 of these hospitals were in the process of drawing one up. (2= missing data)

The majority of hospitals that offer PDPTS ask the doctor to counter-sign/authorise the prescription written by the pharmacist before the patient is discharged (65 per cent n=31/48) (1=missing data). However, seven hospitals reported that they *sometimes* asked the doctor to counter-sign/authorise the discharge prescription, and ten hospitals that they did not ask the doctor to counter-sign/authorise the prescription.

Those pharmacy departments that did not ask the doctor to co-sign the prescription often asked the doctor to indicate in some other manner that they wanted the pharmacist to write the prescription and were satisfied that the current medication was suitable for the patient at discharge. Three departments used verbal authorisation, two departments asked the doctor to sign the in-patient drug chart, two departments “sometimes” asked the doctor to sign the in-patient drug chart and one asked the doctor to sign a separate form. Two departments did not ask the doctor to indicate in any other manner of his/her authorisation to write the prescription.

Among the hospitals that “sometimes” asked the doctor to counter-sign the pharmacist-written prescription, only one hospital had an alternative method of authorisation, which was to sometimes ask the doctor to counter-sign the in-patient drug chart.

All of the hospitals were asked if the doctor indicated in any other manner that he/she gave authorisation for certain drugs to be prescribed on discharge by the pharmacist (Table 8).

Authorisation method	Frequency (%)
No alternative authorisation method used	27 (56)
Doctor verbally authorises the discharge prescription	7 (15)
Doctor sometimes signs the in-patient chart	6 (13)
Doctor signs a separate authorisation form	4 (8)
Doctor always signs the in-patient chart	4 (8)
Doctor authorises discharge prescription in medical notes	3 (6)
Doctor writes information on the in-patient chart about discharge	2 (4)

**Table 8:** *Methods of authorisation of pharmacist-written discharge prescriptions by the doctor (other than counter-signing the discharge prescription). (n=48)*

The most common method used for indicating which drugs the patient was to be discharged upon was verbal authorisation (15 per cent, n=7), (1=missing data) followed by the doctor sometimes signing the drug chart (13 per cent, n=6). The twenty-six reported methods of authorisation other than countersigning were used by twenty-one pharmacy departments indicating that some departments used several different authorisation methods. The remaining twenty-seven pharmacy departments did not use any other methods of authorisation.

#### 4.1.7 Factors that influence the provision of a PDPTS

Pharmacists in hospitals that do offer PDPTS (n=49/135) were asked their reasons for offering the service, via an open question. (1=missing data) The results are presented in Table 9.

Reason	Frequency (%)
Speed up the discharge process	35 (73)
Improve accuracy/decrease errors	24 (50)
Reduce junior doctor time	16 (33)
Increase efficiency in dispensing process	9 (19)
Cost savings Re: use of Patient's Own Drugs (POD)	7 (15)
Enhance pharmacist role/job satisfaction	6 (13)
Improve communication with primary care	5 (10)
Decrease waste prescribing	4 (8)
Increased counselling opportunities	2 (4)
Decrease nursing time	2 (4)
Risk management	1 (2)
Improve patient care	1 (2)

**Table 9:** *Reasons FOR provision of a PDPTS (n=48)*

Most hospitals gave more than one reason for providing PDPTS. The most common reason for implementing PDPTS was to speed up the discharge process (73 per cent, n=35), followed by to improve accuracy/decrease errors/improve quality (50 per cent, n=24). Thirty-three per cent (n=16) stated that the service was implemented to release junior doctor time.

Of the departments not offering a pharmacist discharge prescription transcription service (PDPTS), 42% (n=36/86) indicated that there had been discussions about pharmacist transcribing, but no decision made as yet. 34%, (n=29/86) indicated that there were no plans for such a development, and 22% (n=19/86) said that they were currently developing such a service. (2= missing data)

The pharmacy departments that had no plans to implement PDPTS were asked, via an open question, for their reasons against introducing this service. The results are shown in Table 10.

Reason	Frequency (%)
Insufficient resources	18 (62)
Other services being developed preferentially	7 (24)
No plans/Discussion as yet about providing PDPTS	6 (21)
Lack of funding	4 (14)
Electronic prescribing system under development, so not applicable	4 (14)
Viewed as an administrative role	2 (7)
Service would be for the doctor's benefit only	1 (3)

**Table 10:** *Reasons NOT to provide PDPTS. (n=29)*

The most frequently cited reason for *not* implementing a transcription service was insufficient resources (58 per cent, n=18), followed by development of other medicines management services in preference to pharmacist transcription of discharge prescriptions (e.g. PODs and one-stop dispensing) (23 per cent, n=7, 4=missing data) At no point were legal issues suggested as a factor against the provision of PDPTS.

At the end of the questionnaire, respondents were asked whether they had any further comments. In this section, amongst the hospitals that did not provide PDPTS, a total of 24 comments were made. 11 of these hospitals commented that they were currently considering the implementation of PDPTS, although 4 hospitals also commented that this did depend upon staffing/funding resources. 3 hospitals also positively commented that there were clear benefits of PDPTS. Only two comments suggested that there would be opposition of PDPTS implementation by medical staff:



*1.) “Despite continuous problems with delayed discharges due to TTO’s not being ready, we are likely to meet resistance to pharmacists transcribing TTO’s from our medical director. He is of the opinion that pharmacists should not write on prescription charts at all, but should be educating and instructing the junior doctors on how to do it.”*

*2.) “A pilot project run 2-3 years ago of a pharmacist writing discharge prescriptions for medical patients worried medical staff so much that they got their act together (temporarily). There were problems predicting discharge doses e.g. reducing steroid doses. The project was not continued.”*

As stated earlier, some hospitals were not introducing PDPTS due to other services or electronic prescribing being implemented preferentially instead (Table 9). Three similar comments were also made in the open comments section about the potential impact of electronic prescribing upon the need for PDPTS:

*3.) “This will be superseded by electronic prescribing”*

#### **4.1.8 Summary of main findings from national survey of pharmacist transcribing of discharge prescriptions (secondary care)**

- The response rate was 66% (135/206).
- PDPTS was offered by 49/135 (36%) of hospital pharmacy departments, as an additional service to doctors writing discharge prescriptions. PDPTS was the most common prescribing activity undertaken by pharmacists, followed by a prescription amendment policy (29%), prescribing in pre-admission clinics (18%) and re-writing drug charts (15%). Fifty-nine department's (44%) did not undertake any prescribing activity.
- Of the non-transcribing hospitals, n=59/86 (69%) undertook no prescribing activity (Range= 0 to 3 prescribing activities). Transcribing hospitals offer a wider range of prescribing activities (Range= 1 to 8 prescribing activities).
- A weak relationship was found between the total number of pharmacists employed per hospital and the total number of prescribing activities undertaken (Spearman's rho correlation coefficient= 0.208, p= 0.018).
- The most frequently used PDPTS model involved pharmacists transcribing the discharge prescriptions for their own wards (n=38, 78%).
- The number of pharmacists transcribing discharge prescriptions per hospital ranges from 1 to 89. (Mean=8, Mode=2, Median= 5, 25% percentile= 2, 75% percentile=10).
- The majority of pharmacists wrote less than 5 prescriptions per day (n=25, 52%), (n=17, 35%) wrote 5-10 prescriptions per day.
- The most common training requirement for pharmacists to start transcribing was an in-house training programme (n=27, 55%).
- The majority of department's do not re-assess the ability of their pharmacists to transcribe (n=37, 80%).

## **4.2 IMPLEMENTATION, RISKS AND CONCERNS ABOUT SUPPLEMENTARY PRESCRIBING: SURVEY OF PRIMARY AND SECONDARY CARE PHARMACISTS**

### **4.2.1 Response rates and demographics of respondents**

Of the 143 hospitals, responses were received from 97 (68% response rate) and for the primary care trusts (n=271), responses were received from 183 (68% response rate). No particular patterns emerged when assessment of response rate from different regions was undertaken.

Sixty-two per cent of hospital responses (n= 58) came from Chief Pharmacists (CP) of district general hospitals, 35 per cent (n=33) from Chief Pharmacists of teaching hospitals and 3 per cent (n=3) from Chief Pharmacists of tertiary specialist hospitals. The size of the hospitals varied, with bed sizes ranging from 201-400 to >1500, with the most common ranges being 401-600 (25%, n=23) and 1001 to 1500 (25%, n= 23). Secondary care trust respondents had most commonly been pharmacists for more than 25 years (44/94 (47%)) and chief pharmacists for more than 16 years (26/92 (28%)). The mean +/- standard deviation number of full-time equivalent pharmacists employed by secondary care trusts was 26+/-19 (range, 6-126).

Primary care trust (PCT) respondents had most commonly been pharmacists for 11-15 years (45/181 (25%)) and PCT pharmacists for 3-4 years (62/180 (34%)). Primary care responses indicated that the mean +/- standard deviation number of full-time equivalent pharmacists employed by PCTs was 3+/-2 (range, 0.25-12).

### **4.2.2 Pharmacist Supplementary Prescribing**

#### **4.2.2.1 Secondary care**

When asked about their intentions to implement supplementary prescribing by pharmacists, the majority of CPs (57%, n= 55) stated that they intended to implement the service by the end of 2005 and 14 per cent (n=14) stated that they were not going to implement supplementary prescribing by pharmacists by the end of 2005. Some CPs did not know what their intentions were (29%, n= 28).

The total number of pharmacists employed by the trust was significantly associated with the intention to implement supplementary prescribing by pharmacists ( $p=0.004$ , Kruskal-Wallis test,  $df=3$ ). As the number of pharmacists employed by the trust increased, the more common the intention to implement supplementary prescribing.

The CPs who intended to implement pharmacist supplementary prescribing planned to train between 0 to 14 pharmacists (mean, 3) during 2004, and between 1 to 24 pharmacists (mean, 3) during 2005.

There was a significant relationship between the number of pharmacists to be trained as supplementary prescribers during 2004 and the number of hospital beds in the hospital, with the highest mean rank being for those hospitals with 601-800 beds ( $p=0.012$ , Kruskal Wallis test,  $df=5$ ). This was also found to be the case for 2005 ( $p=0.003$ , Kruskal Wallis test,  $df=5$ ).

A moderate positive correlation was found between the total number of pharmacists employed by the trust and the number of pharmacists to be trained as supplementary prescribers during 2004 (Spearman's rho correlation coefficient,  $r=0.54$ ,  $p<0.001$ ), and this was also found to be the case for 2005 ( $r=0.57$ ,  $p<0.001$ ).

Teaching hospitals were significantly more likely than other types of hospitals to train pharmacists in 2005 ( $p=0.026$ , Kruskal-Wallis test,  $df=2$ ). The majority of chief pharmacists (85%) stated that they intended to train D grade pharmacists as supplementary prescribers; 70% intended to use E grade pharmacists. The different clinical areas of supplementary prescribing targeted by chief pharmacists appear in Table 11 (p 155).

Clinical Area	No. (%) Respondents	
	Secondary Care (n=53)	Primary Care (n=75)
Hypertension	- <sup>b</sup>	40 (53)
CHD or Hyperlipidemia	-	35 (47)
Diabetes Mellitus	5 (9)	27 (36)
TPN or nutrition	19 (36)	-
Asthma	-	25 (33)
Oncology-Haematology	16 (30)	-
Heart Failure or Cardiology	13 (25)	-
COPD	-	18 (24)
HIV	12 (23)	-
Renal	12 (23)	-
Anticoagulation	10 (19)	7 (9)
Surgery or orthopaedics	9 (17)	-
Gastrointestinal or PPIs	-	12 (16)
Pain Control	8 (15)	7 (9)
Rheumatology	7 (13)	5 (7)
Medication Review	-	7 (9)
Hospital Admissions	5 (9)	-
Care of the Elderly	5 (9)	6 (8)
Cystic Fibrosis	5 (9)	-
Hospital Discharge Planning	5 (9)	-
Mental Health	5 (9)	4 (5)
Paediatrics	4 (8)	-
Other	30 (57)	17 (23)

**Table 11. Clinical areas to be undertaken by pharmacists with supplementary prescribing authority<sup>a</sup>**

<sup>a</sup>CHD= coronary heart disease, TPN= total parenteral nutrition, COPD= coronary obstructive pulmonary disease, HIV= human immunodeficiency virus, PPIs= proton pump inhibitors.

<sup>b</sup>Area not offered on questionnaire or provided by respondents

Teaching hospitals were also more likely than other hospital types to offer more pharmacist supplementary prescribing activities ( $p=0.007$ , Kruskal-Wallis test,  $df=2$ ).

A moderate positive correlation between the total number of pharmacists employed by the trust and the total number of pharmacist supplementary prescribing activities being offered (Spearman's rho correlation coefficient,  $r=0.59$ ,  $p<0.001$ ).

A moderate positive correlation was also found between the total number of pharmacist supplementary prescribing activities being offered (i.e. the different clinical areas) and the total number of non-supplementary prescribing pharmacist prescribing activities being undertaken currently (Spearman's rho correlation coefficient,  $r=0.53$ ,  $p=0.001$ ).

The person who will assume responsibility for prescribing if the SP is away was most commonly a junior doctor (56%,  $n=30/54$ ), followed by a consultant physician (39%,  $n=21/54$ ) or another pharmacist supplementary prescriber (37%,  $n=20/54$ ). Some CPs indicated that no cover would be provided for the service (24 per cent,  $n=13/54$ ) or that they didn't know how who would provide the service (13 per cent,  $n=7/54$ ) (missing data=1).

Additional training requirements (additional to the standard supplementary prescribing training) most commonly included a period of clinical experience in the clinical area that the pharmacist supplementary prescriber would be working in (89 %,  $n=49/55$ ), followed by possession of a clinical diploma (73%,  $n=40/55$ ) and the completion of continuing professional development (CPD) requirements from the Royal Pharmaceutical Society of Great Britain (RPSGB) (55%,  $n=30/55$ ).

#### 4.2.2.2 Primary care

The majority of Primary Care Trust Pharmacists (PCTP) intended to implement supplementary prescribing by the end of 2005 (56%,  $n=100$ ) and 9 per cent ( $n=17$ ) did not. Some PCTPs did not know their intentions (35%,  $n=63$ ).

The total number of pharmacists employed by the trust was significantly associated with the intention to implement supplementary prescribing by pharmacists ( $p=0.008$ , Kruskal-Wallis test,  $df=3$ ).

The PCTPs who intended to implement pharmacist supplementary prescribing planned to train between 0 to 6 pharmacists (mean, 2) during 2004, and 1 to 10 pharmacists (mean, 3) during 2005.

When asked which type of pharmacist they were going to train as supplementary prescribers, the most common response was primary care based pharmacists (in PCT's) (67%, n=68/102) followed by general practitioner (GP) practice-based pharmacists (55%, n=56/102) and community pharmacists (45%, n=46/102) (missing data=3).

The different clinical areas in which primary care trust pharmacists planned to implement supplementary prescribing are presented in Table 10 (p150).

The person most commonly listed to assume responsibility for prescribing in the SP's absence was a GP (37%, n=38/102) followed by a nurse supplementary prescriber (21%, n=21/102) or a pharmacist supplementary prescriber (15%, n=15/102). A large percentage of PCTPs indicated that no one would provide the service in the prescriber's absence (32%, n=33/102); 26% (n=26/102) did not know who would provide the service (missing data=3).

Additional training requirements (additional to the standard supplementary prescribing training) most commonly included the completion of continuing professional development (CPD) requirements stipulated by the RPSGB (64%, n=65/101) followed by a period of clinical experience in the area that the pharmacist supplementary prescriber would be working (60%, n=61/101) and possession of a clinical diploma (50%, n=50/101) (missing data=4).

### **4.2.3 Nurse supplementary prescribing**

#### **4.2.3.1 Secondary Care**

When asked whether there were nurses already qualified as supplementary prescribers working within their trust, 58% (n=56) stated that they did have nurse supplementary prescribers, 41% (n=40) that they did not currently have nurse supplementary prescribers, and one chief pharmacist did not know.

The different clinical areas of supplementary prescribing that nurse supplementary prescribers were providing within their trust are presented in Table 12 (p 158).

Number (%) Respondents			Number (%) Respondents		
Clinical Area	Primary Care	Secondary Care	Clinical Area	Primary Care	Secondary Care
AandE/ MAU	-	8 (15)	Obesity	2 (2)	-
Anticoagulation	1 (1)	5 (10)	Oncology	-	4 (8)
Asthma	52 (61)	14 (27)	Ophthalmology	-	1 (2)
Care of the Elderly	2 (2)	1 (2)	Paediatrics	-	6 (12)
COPD	19 (22)	14 (27)	Pain Control	-	8 (15)
Dermatology	7 (8)	9 (17)	Palliative Care	4 (5)	4 (8)
Diabetes	41 (48)	12 (23)	Rehabilitation	-	1 (2)
ENT	-	2 (4)	Renal	-	3 (6)
Epilepsy	1(1)	2 (4)	Rheumatology	1 (1)	5 (10)
Family Planning	10 (12)	3 (6)	SCBU	-	4 (8)
Gastroenterology	-	2 (4)	Sexual health	1 (1)	-
Gynae/maternity	-	2 (4)	Smoking Cessation	3 (4)	-
Heart Failure	37 (43)	12 (23)	Stoma	-	1 (2)
Homeless	1 (1)	-	Stroke	1 (1)	-
Hypertension	24 (28)	1 (2)	Surgery	-	2 (4)
Immunology	-	1 (2)	Thyroid	2 (2)	-
Infection control/Infections	1 (1)	1 (2)	Urology	-	2 (4)
Mental Health	5 (6)	-	Vaccinations	1 (1)	-
Minor Injuries	10 (12)	-			

(N.B. missing data=11 for primary care, 1 for secondary care)

**Table 12. Clinical area currently being provided by nurse supplementary prescribers in primary (n=86) and secondary care (n=52)**

**Abbreviations:**

Aand E/ MAU= Accident and Emergency/ Medical Admissions Unit

COPD= Chronic Obstructive Pulmonary Disease



ENT= Ear, Nose and Throat

SCBU= Special Care Baby Unit

#### 4.2.3.2 Primary Care

When asked whether there were nurses already qualified as supplementary prescribers working within their trust, 75% (n=136) stated that they did have nurse supplementary prescribers, 20% (n=36) that they did not currently have nurse supplementary prescribers, and four PCTPs stated that they did not know. Interestingly, 5 primary care trusts reported that they had nurses who were trained as supplementary prescribers, but were not actually prescribing at the moment (2=missing data).

The different clinical areas of supplementary prescribing that nurse supplementary prescribers were currently providing within their trust are presented in Table 12 (p 158).

The specialist area of nurses that the primary care trust pharmacists stated were training as supplementary prescribers are presented in Table 13 below.

Nurse	Number (%) of respondents
Practice-based nurses	127 (89)
District Nurses	66 (46)
Health-Visitor	30 (21)
Specialist Nurse	25 (18)
Midwives	10 (7)
Community paediatric nurses	7 (5)
Community hospital ward nurse	6 (4)
Walk in centre/ Emergency Nurse	6 (4)
Mental Health Nurse	3 (2)
PCT nurses	3 (2)
School Nurses	3 (2)
Prison Nurse	1 (1)
Interface Nurse	1 (1)
Don't Know	9 (6)

(N.B. missing data=1)

**Table 13: Specialist area of nurses training as supplementary prescribers – primary care. (n=143)**

The most common form of cover for the nurse supplementary prescribing service was to be provided by a GP (45%, n=64), followed by another nurse supplementary prescriber (30%, n=42) and then a pharmacist supplementary prescriber (5%, n=7). However, 35% (n=49) of primary care trust pharmacists did not know how cover was going to be provided and 21% (n=30) stated that no cover would be provided for the service (missing data= 2).

#### **4.2.4 Implementation of Pharmacist Supplementary prescribing**

##### **4.2.4.1 Secondary care**

The factors affecting recruitment of designated medical practitioners are presented in Table 14 (p 161).

Factor	No. (%) Respondents	
	Secondary Care (n=93)	Primary Care (n=179)
Time commitment	65 (70)	146 (82)
Concurrent workload	57 (61)	140 (78)
Benefit to mentor	53 (57)	110 (62)
Relationship with the trainee	47 (51)	75 (42)
Commitment and understanding	47 (51)	93 (52)
Lack of funding	20 (22)	119 (67)
None	2 (2)	4 (2)
Other	0	7 (4)

**Table 14: Factors affecting recruitment of Designated Medical Practitioners in secondary and primary care.** (*N.B. missing data=3 and 4 for secondary and primary care respectively*)

When asked whether if it would be easier to recruit designated medical practitioners (DMPs) for nurses rather than pharmacists. 44% of the CPs did not believe it would be, 22% believed it would and 30% did not know (missing data= 4%). The most common reasons given amongst those who agreed with the statement was that nurses already have an established working relationship with doctors (50%, n=8) and that nurses are already working as prescribers (31%, n=5). Pharmacists who did not believe it would be easier indicated that (1) the problems are identical for both professions (31%, n=8), (2) the ease of recruitment would be dependent on the relationship with the DMP and the benefit received by the DMP (27%, n=7), and that (3) pharmacists are highly specialized and well regarded (23%, n=6).

#### 4.2.4.2 Primary care

The individuals charged with implementing pharmacist supplementary prescribing within each PCT are listed in Table 15 (p 162).

Person or Group	No. (%) Respondents
Pharmaceutical Adviser	118 (65)
PCT non-medical prescribing group	58 (32)
Medicines management committee	36 (20)
Clinical governance lead	7 (4)
Community pharmacy development group	4 (2)
Nurse prescribing facilitator	3 (2)
Lead pharmacist for prescribing	2 (1)
Head of workforce development	1 (1)
Not yet decided	29 (16)
Do not know	3 (2)
No one	2 (1)

(N.B. missing data = 2)

**Table 15. Person or group responsible for implementing supplementary prescribing (SP) by pharmacists within primary care trusts. ( n=181)**

When asked if it would be easier to recruit designated medical practitioners (DMP) for nurses rather than pharmacists, the majority of PCTPs agreed with this statement (47%, n=86) Twenty-eight percent (n=50) did not and 25% (n=46) did not know (missing data=1).

Those who agreed with the statement indicated that nurses already have an established working relationship with doctors (87%, n=69), and that nurses are already working as prescribers (27%, n=21). Respondents also stated that (1) General Practitioners (GPs) do not understand pharmacists' skills and have no relationship with them (15%, n=12), (2) it would be more difficult for employees of trusts (11%, n=9) and (3) pharmacists are viewed as being business focused or non-NHS employees(10%, n=8). The most common reasons given amongst those who disagreed with the statement were (1) the problems are identical for both professions (48%, n=13), (2) pharmacists have good working relationships with other healthcare professionals (26%, n=7) (3) it would be dependent on the relationship with and the benefit received by the DMP (15%, n=4), and (4) it depends on whether the person is a trust employee (15%, n=4). Therefore there seemed to be some confusion as whether being an employee of a

primary care trust for a pharmacist would make it easier or more difficult to recruit a DMP.

#### 4.2.5 Implementation of Nurse Supplementary Prescribing

The person responsible for taking forward non-medical nurse supplementary prescribing within primary care trusts are presented in Table 16 below.

Person or group	Number (%) of Respondents
Director of nursing	95 (52)
PCT non-medical prescribing group	70 (39)
Pharmaceutical adviser	56 (31)
Medicines management committee	25 (14)
Nurse prescribing lead	20 (11)
Executive nurse/ professional development lead	6 (3)
Clinical governance lead	5 (3)
Senior nurse forum	3 (2)
Assistant director of primary care	1 (1)
CPD facilitator	1 (1)
Head of workforce development	1 (1)
Yet to be decided	6 (3)
Don't know	2 (1)
No-one	2 (1)

(N.B. missing data =1)

**Table 16: Person or group responsible for implementing supplementary prescribing (SP) by nurses within the trust (primary care). (n=182)**

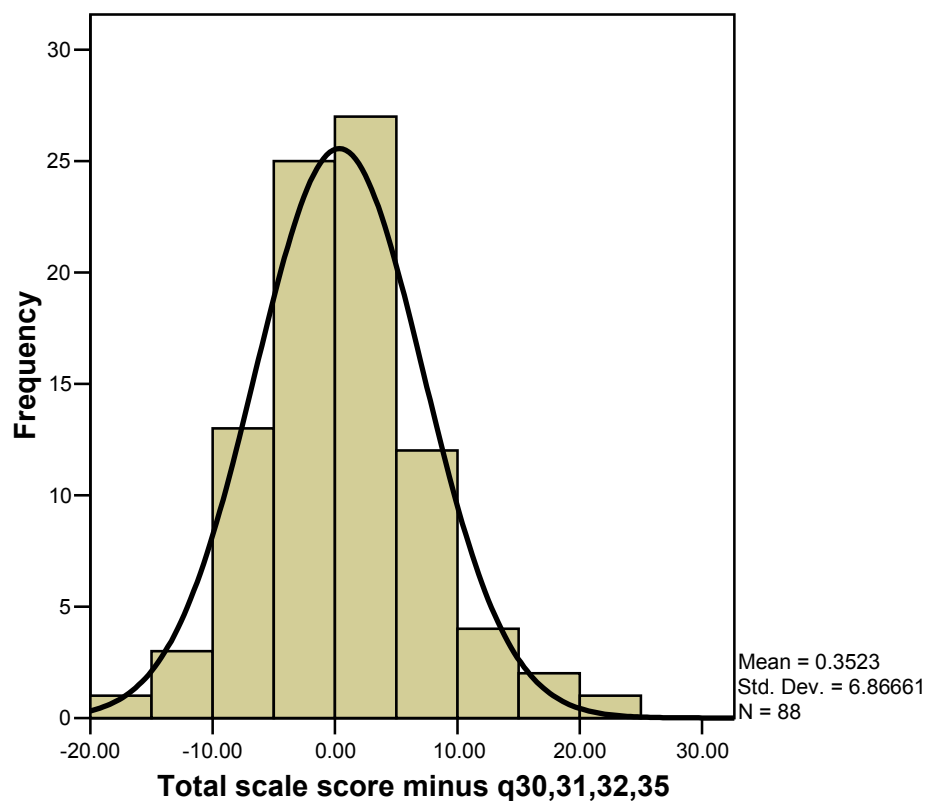
## 4.2.6 Section C attitude scale results

### 4.2.6.1 Secondary Care

The overall attitude scale results (Section C of questionnaire) are presented in appendix 7, p 409.

#### 4.2.6.1.1 General attitude score

The mean attitude score overall was 0.35 (SD 6.87) and a histogram of attitude scores indicated a normal distribution (Kolmogorov-Smirnov significance  $>0.05$ ) (Figure 4 below).



**Figure 4: Histogram of the attitude scores of the chief pharmacist respondents (secondary care) (Missing data n=9)**

*(The reasoning for removing statements 30,21,32 and 35 from the total scale is discussed in the section “Testing the overall reliability of the scale-secondary care” (p 169))*

#### *4.2.6.1.2 Years of qualification*

A one-way between groups analysis of variance was conducted to explore the impact of number of years of qualification as pharmacists of the chief pharmacists on their attitude towards supplementary prescribing, as measured by the total attitude score. Subjects were divided into five groups according to the number of years they had been qualified as pharmacists. No statistical difference was found between the five groups and their total attitude scores.

#### *4.2.6.1.3 Number of years as a chief pharmacist*

A one-way between groups analysis of variance was conducted to explore the impact of number of years as a chief pharmacist on their attitude towards supplementary prescribing, as measured by the total attitude score. Subjects were divided into six groups according to the number of years they had been chief pharmacists. No statistical difference was found between the six groups and their total attitude scores.

#### *4.2.6.1.4 Hospital type*

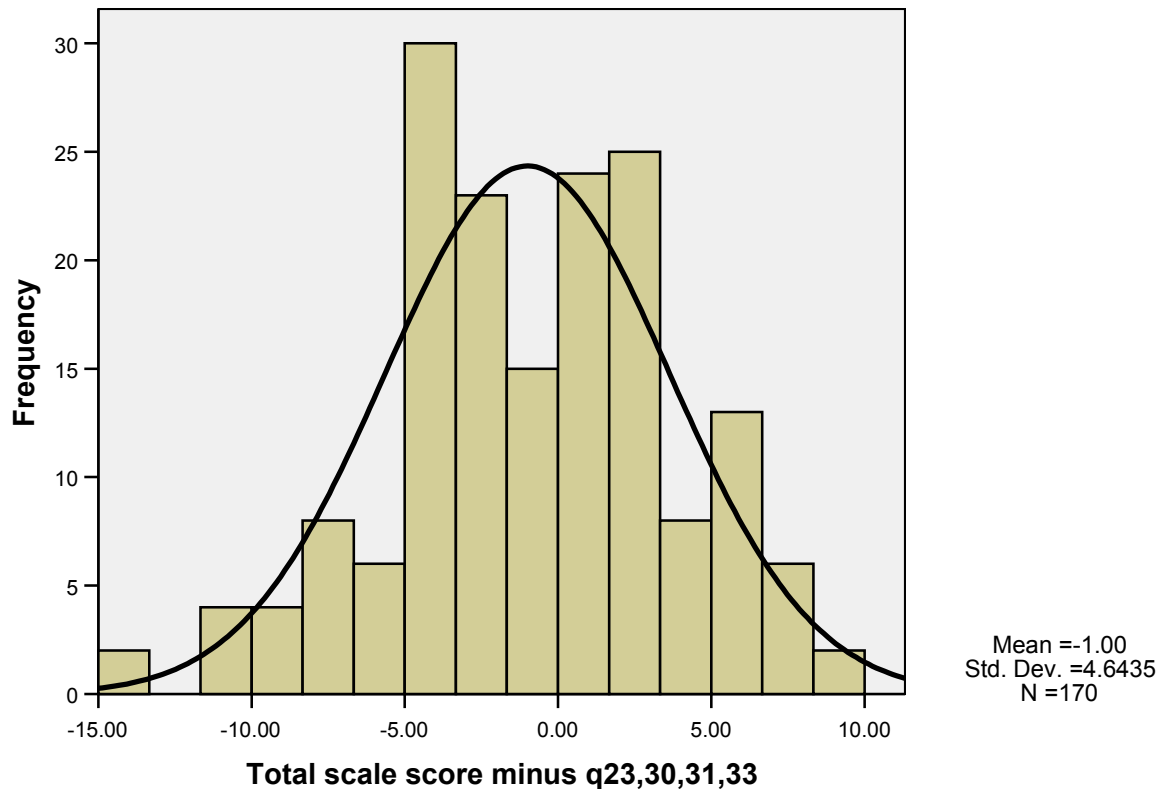
A one-way between groups analysis of variance was conducted to explore the impact of hospital type upon the attitude of the chief pharmacist towards supplementary prescribing, as measured by the total attitude score. Subjects were divided into three groups according to the hospital type they were from. No statistical difference was found between the three groups and their total attitude scores.

#### *4.2.6.1.5 No. of beds*

A one-way between groups analysis of variance was conducted to explore the impact of the size of the hospital upon the attitude of the chief pharmacist towards supplementary prescribing, as measured by the total attitude score. Subjects were divided into seven groups according to the size of hospital they were from. No statistical difference was found between the seven groups and their total attitude scores.

#### *4.2.6.2 Primary Care*

The mean attitude score overall was -1.0 (SD 4.64) and a histogram of attitude scores indicated a normal distribution (Kolmogorov-Smirnov significance >0.05) (Figure 5, p 166).



**Figure 5: Histogram of the attitude scores of the primary care pharmacist respondents (Missing data n=13)**

*(The reasoning for removing statements 23,30,31 and 33 from the total scale is discussed in the section “Testing the overall reliability of the scale-primary care” (p 170))*

#### 4.2.6.2.1 Years of qualification

A one-way between groups analysis of variance was conducted to explore the impact of number of years of qualification as pharmacists of the primary care trust pharmacists on their attitude towards supplementary prescribing, as measured by the total attitude score. Subjects were divided into six groups according to the number of years they had been qualified as pharmacists. (Six groups were used rather than five as per secondary care, as an assumption was made that a chief pharmacist would have at least five years experience. For primary care pharmacists a category was included



for having less than five years experience since qualification.) No statistical difference was found between the six groups and their total attitude scores.

#### *4.2.6.2.2 Number of years as a primary care trust pharmacist*

A one-way between groups analysis of variance was conducted to explore the impact of number of years as a primary care trust pharmacist on their attitude towards supplementary prescribing, as measured by the total attitude score. Subjects were divided into six groups according to the number of years they had been primary care trust pharmacists. No statistical difference was found between the six groups and their total attitude scores.

### **4.2.7 Factor analysis**

Bartlett's test of sphericity was significant ( $p < 0.001$ ) for both the primary and secondary care questionnaire. Also the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was adequate for both questionnaires. This verifies that the majority of items within the survey were sufficiently related to each other to proceed with factor extraction. More than half the items had a correlation coefficient of greater than 0.3, for both questionnaires, suggesting a strong correlation between the items. Six factors were extracted using Principal Components Analysis (PCA) with an Eigen value greater than 1 for the secondary care questionnaire, and on review of the scree plot, either three or five factors could be retained. However, after examining both models and seeking advice from a medical statistician, a three factor model was thought to be the most appropriate explanation of the data. This explained 40.5 per cent of the total variance.

For the primary care questionnaire, seven factors were extracted using PCA with an Eigen value greater than 1. On review of the scree plot and discussion with a medical statistician, three factors were retained, which explained 37.0% of the total variance. The extracted factors were rotated using oblique rotational methods.

For the secondary care questionnaire, item thirty-one did not load at all on the factors and therefore this item was dropped at this stage. Items 30 and 35 do not load significantly on any factor (significance = factor loading  $> 0.4$ ), and therefore these two items would be further assessed on the internal consistency of the extracted factors (see appendix 8, p 414).

For the primary care questionnaire, items 30 and 33 did not load at all on the factors and therefore these questions were dropped at this stage. Item 20 did not load significantly on any factor and therefore this item would be further assessed on the internal consistency of the extracted factors (see appendix 9, p 416).

#### 4.2.7.1 Testing the internal consistency of the extracted factors

The internal consistency of items within a factor was ascertained. The reliability coefficient (Cronbach's coefficient alpha) was calculated to indicate the strength of the relationship of each item within the factor. The consistency of the factor constructs are presented in Table 17 below.

Factor construct	No. of items		Coefficient	
	Primary Care	Secondary Care	Primary Care	Secondary Care
One	5	5	0.519	0.597
Two	4	6	0.587	0.694
Three	4	3	0.555	0.622

**Table 17: Reliability coefficients of the extracted subscales**

##### 4.2.7.1.1 Secondary care

Assessment of the individual reliability coefficient for each item in the extracted factors suggested that items 22, 32 and 35 needed to be removed from factor one, items 30 and 32 needed to be removed from factor two and item 25 from factor 3 as they adversely affected the internal consistency of the extracted factor.

##### 4.2.7.1.2 Primary care

Assessment of the individual reliability coefficient for each item in the extracted factors suggested that items 23 and 31 needed to be removed from factor one, item 21 needed to be removed from factor two and item 20 from factor 3 as they adversely affected the internal consistency of the extracted factor.

#### 4.2.7.2 Testing the overall reliability of the scale

Item-total correlations were assessed, which compares the scores on individual statements with the total score of the scale. Statements were considered for rejection if their item-total correlation was below 0.2.

Also the overall correlation between items within the scale was measured using the Cronbach's alpha score. A reliability coefficient of 0.7 or above is recommended which would imply that seventy per cent of the measured variance is reliable and thirty per cent is owing to random error.

##### 4.2.7.2.1 *Secondary care*

The reliability scores as outlined above therefore suggest removing items 30, 31 and 35 from the overall scale. As item 32 was removed from two of the three factors upon internal consistency measurement, the overall Cronbach's alpha coefficient was also calculated for the scale minus this item as well. This produced the best overall Cronbach alpha for the scale =0.75, (minus items 30,31,32 and 35).

##### 4.2.7.2.2 *Primary care*

The reliability scores as outlined above therefore suggest removing items 20, 30 and 33 from the overall scale. However, the best overall Cronbach alpha score for the scale is with items 23,30,31 and 33 removed from the scale= 0.602. Therefore this overall reliability coefficient score coupled with the poor internal consistency of the extracted factors suggests that this scale is not reliably measuring the attitudes on the scale.

#### 4.2.7.3 Interpreting the factors

Table 18 and Table 19 (p170-171) display the interpretation of the emergent constructs. The factor analysis process had grouped various statements from the questionnaire that were related to each other into each factor. The items within each of these emergent factors were then reviewed and the concepts underlying them were described and interpreted.

Factor one: Limitations of the SP training model	<p>High scoring respondents were being positive about SP, were willing to put more effort into the development of SP (if necessary) and they thought there would not be many limitations to the SP training model.</p> <p>Low scoring respondents were being negative about the SP training model, were less likely to put much effort into the development of SP and were agreeing that there were problems with it.</p>
Factor two: Professional competence/responsibility issues once trained	<p>High scoring respondents were being positive about SP and were suggesting that trained supplementary prescribers will not encounter issues that threaten their professional competence or responsibility.</p> <p>Low scoring respondents were being negative about SP and were suggesting that trained supplementary prescribers would encounter issues that threaten their professional competence or responsibility.</p>
Factor three: How commonly SP will be implemented	<p>High scoring respondents had more will to introduce SP and were suggesting that implementation would be a priority within trusts and that pharmacists in secondary care did want to take on this role.</p> <p>Low scoring respondents had less will to introduce SP and were suggesting that implementation of SP would NOT be a priority within their trust and that pharmacists did NOT want to take on this role.</p>

**Table 18: Interpretation of the emergent factor constructs (Secondary Care)**

Factor one: Professional competence/responsibility issues once trained plus limitations to uptake of SP	<p>High scoring respondents were being positive about SP suggesting that trained supplementary prescribers will not encounter issues that threaten their professional competence or responsibility. Also that issues such as IT provision will not be an obstacle and that IP will not be more useful.</p> <p>Low scoring respondents were being negative about SP and were suggesting that trained supplementary prescribers would encounter issues that threaten their professional competence or responsibility.</p> <p>They also thought that IT provision would affect implementation of SP and that IP would be of more use.</p>
Factor two: How commonly SP will be implemented plus limitations to uptake of SP	<p>High scoring respondents had more will to introduce SP and were suggesting that implementation would be a priority within trusts and that pharmacists in secondary care did want to take on this role. Also that reassessment and maintaining competency once qualified was not an issue.</p> <p>Low scoring respondents had less will to introduce SP and were suggesting that implementation of SP would NOT be a priority within their trust and that pharmacists did NOT want to take on this role. Also that reassessment and maintaining competency once qualified was an issue.</p>
Factor three: Limitations of the SP training model plus Professional competence/responsibility issues once trained	<p>High scoring respondents were being positive about SP, were willing to put more effort into the development of SP (if necessary) and that they thought there would not be many limitations to the SP training model.</p> <p>They also did not think that multiple prescribers would increase the prevalence of iatrogenic disease.</p> <p>Low scoring respondents were being negative about the SP training model, were less likely to put much effort into the development of SP and agreed that there were problems with the SP training model.</p> <p>They also thought that multiple prescribers would increase the prevalence of iatrogenic disease.</p>

**Table 19: Interpretation of the emergent factor constructs (Primary care)**

#### 4.2.7.4 Exploring the factor scores

The distributions of the scores for the extracted factors are summarised in Table 20 and Table 21 (p 172-173). Spearman's rho was used to explore the relationships between the total scores for the extracted factors. Table 22 (p174) summarises the relationships between the factors.

Factor one: Limitations of the SP training model	Normal distribution of scores The tendency towards lower scores indicates that the respondents agreed that there were limitations to the SP training model.	Mean scale score: -1.73 Std. deviation: 3.42 Median scale score: -2.00 Minimum score: -8.00 Maximum score: 10.00
Factor two: Professional competence/responsibility issues once trained	Normal distribution of scores The small tendency towards lower scores indicates that respondents agreed that there were professional competency/responsibility issues post qualification.	Mean scale score: 0.86 Std. deviation: 4.09 Median scale score: 1.00 Minimum score: -7.00 Maximum score: 11.00
Factor three: How commonly SP will be implemented	Skewed distribution of scores The higher proportion of high scores indicates that respondents were positive about the implementation of SP, that it would be a priority of trusts and that pharmacists wanted to take the role on.	Mean scale score: 0.22 Std. deviation: 2.23 Median scale score: 0.00 Minimum score: -6.00 Maximum score: 6.00

**Table 20: Distribution of scores (Secondary care)**

Factor one: Professional competence/responsibility issues once trained plus limitations to uptake of SP	<p>Skewed distribution of scores</p> <p>The higher proportion of lower scores indicates that respondents were being more negative about SP and were suggesting that trained supplementary prescribers would encounter issues that threaten their professional competence or responsibility and that IT provision would affect implementation of SP and that IP would be of more use.</p>	<p>Mean scale score: -0.58</p> <p>Std. deviation: 2.54</p> <p>Median scale score: -1.00</p> <p>Minimum score: -7.00</p> <p>Maximum score: 6.00</p>
Factor two: How commonly SP will be implemented plus limitations to uptake of SP	<p>Skewed distribution of scores</p> <p>The higher proportion of high scores indicates that respondents were positive about the implementation of SP, that it would be a priority of trusts and that pharmacists wanted to take the role on. Reassessment and competency maintenance were not viewed as being an issue once qualified.</p>	<p>Mean scale score: 0.29</p> <p>Std. deviation: 2.55</p> <p>Median scale score: 0.00</p> <p>Minimum score: -6.00</p> <p>Maximum score: 6.00</p>
Factor three: Limitations of the SP training model plus Professional competence/responsibility issues once trained	<p>Skewed distribution of scores</p> <p>The higher proportion of lower scores indicates that respondents were being more negative about the SP training model and were agreeing that there were problems with it. They also thought that multiple prescribers would increase the prevalence of iatrogenic disease.</p>	<p>Mean scale score: 0.21</p> <p>Std. deviation: 2.55</p> <p>Median scale score: 0.00</p> <p>Minimum score: -6.00</p> <p>Maximum score: 7.00</p>

**Table 21: Distribution of scores (Primary care)**

Spearman's Correlation coefficient rho (n=169-174 primary care) (n=88-92 secondary care) (P value) Percentage variance explained				
	Factor One		Factor Two	
	Primary Care	Secondary Care	Primary Care	Secondary Care
Factor two	0.309 (P=0.000) 9.5 per cent	0.511 (P=0.000) 26.1 per cent		
Factor three	0.415 (P=0.000) 17.2 per cent	No significant relationship	0.173 (P=0.024) 3 per cent	No significant relationship

**Table 22: Correlations between the factors**

#### 4.2.7.4.1 Secondary care

There was a strong association between factors one and two (Table 22, above). Positive attitude towards limitations of the supplementary prescribing training model may be related to a positive attitude that trained supplementary prescribers will not encounter issues that threaten their professional competence or responsibility.

#### 4.2.7.4.2 Primary care

There was a strong association between factors one and three (Table 22, above). The positive attitude that trained supplementary prescribers will not encounter issues that threaten their professional competence or responsibility. Alongside this, that issues such as IT provision will not be an obstacle and that independent prescribing will not be more useful may be related to a positive attitude towards limitations to the supplementary prescribing training model. Also that they did not think that multiple prescribers would increase the prevalence of iatrogenic disease.

Therefore the same strong association was found amongst secondary and primary care.

#### 4.2.7.5 Exploring relationships between the factors and the respondents

Table 23 (p175) presents the relationships between factor scores and relevant questionnaire responses.



Spearman's Rho	Correlation coefficient rho (P value) Percentage variance explained N					
	Factor One		Factor Two		Factor Three	
	Primary Care	Secondary Care	Primary Care	Secondary Care	Primary Care	Secondary Care
Total number of Whole Time Equivalent (WTE) pharmacists employed by trust	No significant results	0.303 (P=0.008) 9.2 per cent 76	0.267 (P=0.000) 7.1 per cent 170	No significant results	No significant results	No significant results
Total number of current pharmacist prescribing activities (NON-SP)	No significant results	0.300 (P=0.021) 9.0 per cent 59	No significant results	No significant results	0.441 (P=0.008) 19.4 per cent 35	No significant results
Total number of current nurse prescribing activities (SP)	No significant results	0.359 (P=0.011) 12.9 per cent 49	No significant results	No significant results	No significant results	No significant results

**Table 23: Correlations between the factor scores and respondents**

Kruskal Wallis	Chi squared (P value) Df Highest mean ranking (Yes answer) N					
	Factor One		Factor Two		Factor Three	
	Primary Care	Secondary Care	Primary Care	Secondary Care	Primary Care	Secondary Care
	No significant results	No significant results	No significant results	No significant results	No significant results	No significant results
Intention to implement pharmacist SP by end of 2005	20.523 (P=0.000) 3 57.75 92	12.224 (P=0.007) 3 96.95 172	No significant results	No significant results	No significant results	14.128 (P=0.003) 3 55.92 96
Intention to implement/train more nurse SP's by end of 2005?	9.659 (P=0.022) 2 126.88 (No answer) 174	No significant results	No significant results	No significant results	No significant results	No significant results
Do pharmacists undertake "prescribing- type activities" (NON- SP) in your trust?	No significant results	No significant results	8.913 (P=0.012) 2 106.64 173	No significant results	No significant results	No significant results

**Table 23 continued: Correlations between the factor scores and respondents**

#### *4.2.7.5.1 Secondary care*

There was a weak to moderate association between factor one and the total number of pharmacists employed in the trust. This suggests that as the total number of employed pharmacists increases the respondents had less concerns over the limitations of the supplementary prescribing training model.

There was also a weak to moderate association between factor one and the total number of current pharmacist prescribing activities (NON-supplementary prescribing). This suggests that as the trust has more of these prescribing activities being undertaken, there are fewer concerns over the limitations of the supplementary prescribing training model.

There was also a slightly stronger association between factor one and the total number of current nurse supplementary prescribing activities. Suggesting that as trusts have more experience of supplementary prescribing by nurses, the respondents have fewer concerns over the supplementary prescribing training model.

A relationship was found between factor one and the intention to implement pharmacist supplementary prescribing by the end of 2005. Respondents were more likely to state that they were intending to implement supplementary prescribing by pharmacists if they did not have concerns over the supplementary prescribing training model.

A relationship was also found between factor three and the intention to implement pharmacist supplementary prescribing by the end of 2005. Respondents were more likely to state that they were intending to implement supplementary prescribing by pharmacists if they thought that implementation of supplementary prescribing was going to be a priority within their trust and that pharmacists wanted to take on this role.

#### *4.2.7.5.2 Primary care*

There was a weak to moderate association between factor two and the total number of pharmacists employed in the trust. This suggests that as the total number of employed pharmacists increases the respondents thought that implementation of supplementary prescribing would be a priority within their trust, that pharmacists did want to take on this role and that reassessment and maintaining competency would not be an issue once qualified.

A strong association was found between factor three and the total number of current pharmacist prescribing activities (NON-supplementary prescribing). As the number of current pharmacist prescribing activities (NON-supplementary prescribing) increases, the respondents had less concerns over the limitations of the supplementary prescribing training model and professional competency and responsibility issues.

A relationship was found between factor two and the intention to implement pharmacist supplementary prescribing by the end of 2005. Respondents were more likely to state that they were intending to implement supplementary prescribing by pharmacists if they thought that implementation of supplementary prescribing was going to be a priority within their trust, and that pharmacists did want to take this role on. Also that reassessment of the trained supplementary prescriber and maintenance of competency would not be an issue.

A relationship was found between factor one and the intention to implement or train more nurses as supplementary prescribers within your trust by the end of 2005. Respondents were more likely to state that they were intending to implement

supplementary prescribing by nurses if they thought that supplementary prescribers would not encounter issues that threaten their professional competency or responsibility once qualified. They would also not consider that IT provision would be a problem or that independent prescribing would be more useful than supplementary prescribing.

A relationship was also found between factor two and whether pharmacists currently undertake “prescribing-type activities” (NON-supplementary prescribing) in any format within the trust. Respondents who answered yes to this question were more likely to think that implementation of supplementary prescribing would be a priority within the trust and that pharmacists did want to take this role on. Also that reassessment of the trained supplementary prescriber and maintenance of competency would not be an issue.

#### **4.2.8 Summary of main findings of survey of primary and secondary care pharmacists; Implementation, Risks and Concerns about supplementary prescribing**

- The response rate was 68% for both surveys. Both sectors intended to implement supplementary prescribing by pharmacists by the end of 2005 (57%, n=55 and 56%, n=100 respectively).
- The majority of the chief pharmacists did not believe that it would be more difficult to recruit designated medical practitioners (DMPs) to supervise supplementary prescribing training for pharmacists as opposed to nurses (67%, n=43), whereas the largest group of primary care trust pharmacists did think this would be the case (47%, n=86). Reasoning included “GPs do not understand a pharmacist’s skills/ do not have an established relationship with them”, “Pharmacists are viewed as being business focused/ non-NHS” and “pharmacists are seen as a threat.”
- Within secondary care, the clinical areas in which pharmacists were intending to work as supplementary prescribers were those where they already had established roles. Within primary care, the main clinical areas for pharmacists were influenced by those areas in the new General Medical Services (GMS) Quality and Outcomes Framework (QUOF) for general practitioners (GPs).
- The survey tool was subjected to factor analysis and reliability testing. For both sectors, the three factors that were extracted described concerns over the training model for supplementary prescribing, concerns about the professional competency/responsibility of the supplementary prescribers once trained, and positivity about the implementation of supplementary prescribing.
- For both sectors, as trusts have more experience of supplementary prescribing by nurses, the respondents had less concerns about the supplementary prescribing training model.
- For secondary care, as the total number of pharmacists employed within the Trust increases, the respondents had less concerns over the limitations of the supplementary prescribing training model.

### 4.3 PATIENT'S VIEWS AND OPINIONS OF PHARMACISTS AND NURSES AS INDEPENDENT PRESCRIBERS

#### 4.3.1 Demography of Interviewees

The number of participants recruited for interview was 18. Five patients were recruited from a GP practice (primary care) who had received usual (GP) care for their hypertension (site 1), five patients from a GP practice (primary care) who saw a pharmacist supplementary prescriber for care of their hypertension (site 3). Five patients were recruited from an acute hospital NHS trust oncology outpatient's clinic (secondary care), who received normal (consultant) care for their gastro-intestinal cancer (site 2), and three patients were recruited from a acute hospital NHS trust who saw a pharmacist supplementary prescriber for care of part of their treatment for gastro-intestinal cancer (oral capecitabine clinic) (site 4). Details of the participants are given in appendix 12, p424 and details of the sites and the patients' prescribers are found below in Table 24.

Site number	Patient's prescriber	Address
Site 1	Dr W House, GP	St Augustine's Surgery, 4 Station Road, Keynsham, Bristol BS31 2BN
Site 2	Dr C Blessing, Consultant Oncologist	The Great Western Hospital, Swindon & Marlborough NHS Trust, Marlborough Road, Swindon SN3 6BB
Site 3	Dr R Britton, SP	Seymour Medical Practice, Charlotte Keel Healthcentre, Seymour Road, Easton, Bristol BS5 OVA
Site 4	Mr K Wildman, SP	Royal Sussex County Hospital, Brighton & Sussex University Hospitals Trust, Eastern Road, Brighton, BN2 5BE

**Table 24: Site demographics**

#### 4.3.2 Layout of this section of results

The findings reported below describe the participants' experiences of prescribing by either a medical professional or a pharmacist supplementary prescriber, and their views upon the extension of the prescribing role of pharmacists and nurses to independent prescribers. Extracts from their narratives are shown in italics in the text. Those participants who had experienced pharmacist supplementary prescribing have SP written after their participant number so that the quote from them can be read in context.

The results have been separated out into specific sections of discourse, as follows;

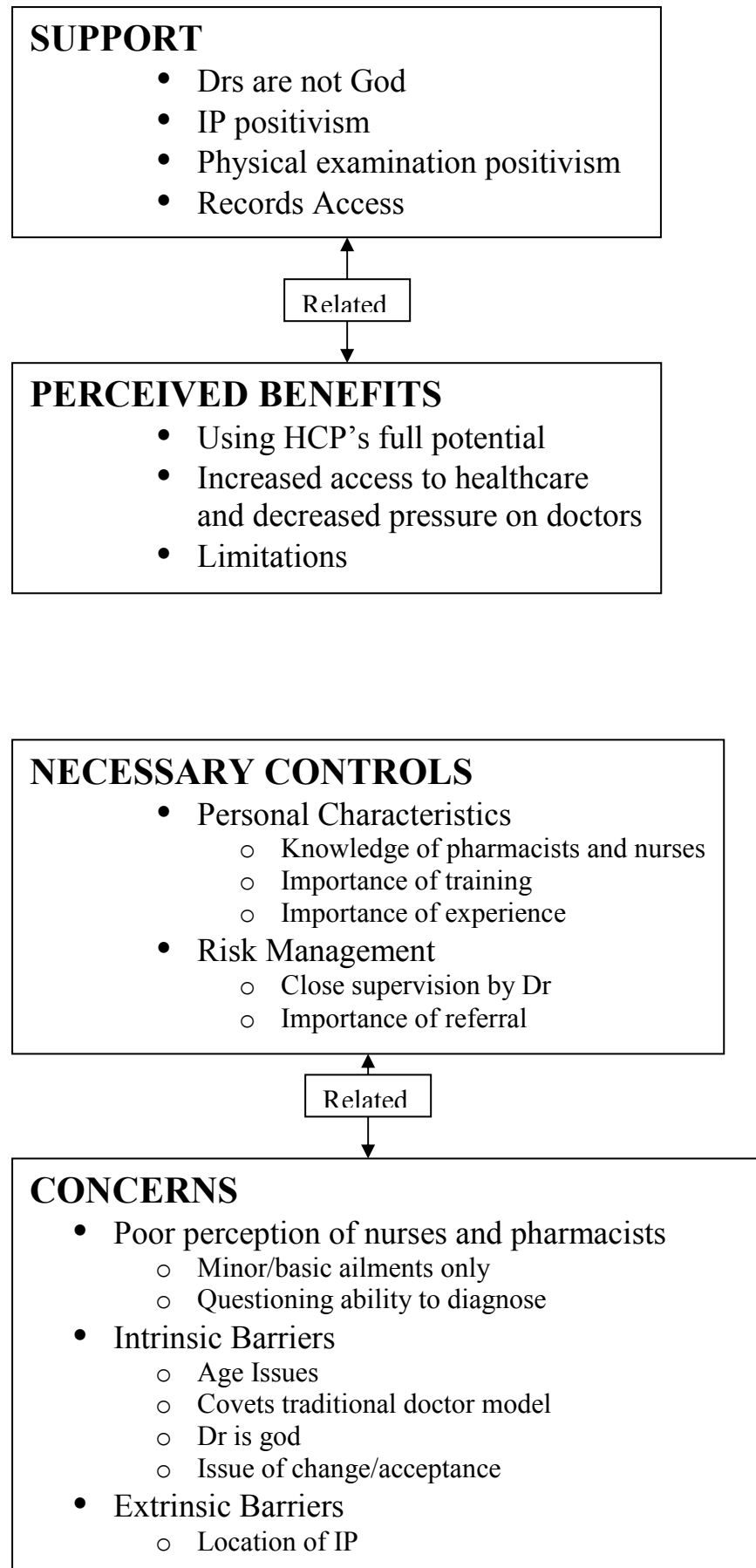
- *Section 1:* The first section (p182) contains discourse regarding issues that equally affected nurses and pharmacists regardless of their profession. These have then been spilt into themes which were found to be **supportive** of non-medical independent prescribing, followed by themes regarding **necessary controls** for non-medical independent prescribing and then themes regarding **concerns** that participants had regarding non-medical independent prescribing.
- *Section 2:* The second section (p206) reports those themes that are specific to **pharmacists** alone.
- *Section 3:* The third section (p225) regards those themes that are specific to **nurses**.
- *Section 4:* The fourth section (p236) reports themes that were specific to participants who had experienced **supplementary prescribing** by pharmacists.
- *Section 5:* This section (p249) further explores the differences of opinion between participants who had experienced supplementary prescribing and those who hadn't, differences of opinion between participants who had hypertension versus those who had gastro-intestinal cancers, the influence of background experience upon participants' opinions and differences of opinion upon nurses and pharmacists as independent prescribers.

## **Section 1**

**4.3.3 General discourse supportive of Independent Prescribing by non-medical healthcare professionals regardless of the type of professional.**



Figure 6: Summary of discourse applicable regardless of type of healthcare professional.  
(Section 1) Emerging Themes



#### 4.3.3.2 Support for Independent Prescribing

##### 4.3.3.2.1 *Dr's are not God.*

A few participants recognised that although doctors tend to have a lot of status and power, looking at the roles they perform, they do not all have to be undertaken by a medically-trained professional. With appropriate training, other healthcare professionals could undertake some of the roles.

*There always seems to be this great myth about what GP's are and do and I realise that from recent years that they are human beings especially when you see them out of the surgeries so to speak and also seeing in other contexts discussing stuff. I also realise that actually some of these things other people are quite capable of doing given the suitable training. So I cannot think of any reason why not. (Participant 10)*

This realisation that other health care professionals are capable of taking on some roles traditionally performed by the doctor is part of the change process that the public will need to go through. They need to accept that healthcare provision is going to change and that you may not always see the doctor when you are ill.

*There appear to be a lot of people who want to see the top person and aren't prepared to work their way up through the system, ...personally I'd be quite happy to deal with the nurse or pharmacist rather than in the same way when you go to the doctor and they think maybe you've got something wrong they then refer you to a specialist. (Participant 8)*

##### 4.3.3.2.2 *Independent Prescribing positivism*

Some participants thought that as long as independent prescribing was introduced appropriately with controls in place, it would be a useful addition to improve the accessibility of healthcare.

*Obviously half the time with routine cases it is just not necessary to see a doctor really and I think I would be very much in favour of it really. (Participant 18 SP)*  
*I think then if it's introduced properly it could be very beneficial. (Participant 6)*

One participant felt that in order to maintain accessibility to healthcare this was the route that the NHS had to go down. Available resources of doctors in the future will mean that the current model of healthcare provision would not be viable.

*I think there are certain conditions that a pharmacist should be able to diagnose and prescribe; you don't need the doctor to be the authority/ give the authority for it. I know it's a lot of responsibility but I think in trying to deliver appropriate care or alternative pathways of care for patients then this is a route that I think the NHS should go down. (Participant 15 SP)*

The majority of the participants had no concerns about nurses becoming independent prescribers and were quite supportive of the development. They also stated that they would be happy to use such a service.

*I can see it would be quite useful. When I was sitting one day in day-therapy unit and I had some kind of side-effect that I was talking to the nurse about she said 'oh well maybe a bit of something or other would be useful' and then she had to scurry round to find the person to write the prescription so if she had been able to do it, that would have been helpful, for example and it was quite unnecessary for somebody else to be brought in to have a look at me. (Participant 10)*

*From experience I've had in hospitals I think if nurses can prescribe, if they're trained up to be able to prescribe then I think it would be a good thing (Participant 17 SP)*

#### 4.3.3.2.3 Physical examination positivism

Most participants were very positive about pharmacists undertaking physical examinations. Participants understood the importance of doing this in order to monitor conditions and establish diagnoses.

*Oh yes that wouldn't worry me at all, no. (Participant 8)*

*Yes my body is nothing special. (Participant 13 SP)*

*Well if you felt desperately ill you would be so grateful whoever was doing it, that they were trying to find out what is causing you to feel as you feel, so I think any patient will probably not resist at all. (Participant 3)*

However, some people were more cautious and felt that they would only be happy with a pharmacist undertaking a physical examination if they had sufficient training to do so.

*If they're appropriately qualified yes then no problem. (Participant 17 SP)*

*Yeah why not, I mean as long as they know what, they know what they are doing then (Participant 11 SP)*

A couple of participants recognised that the NHS is undergoing change and as such, different healthcare professionals will need to undertake physical examinations and therefore patients should be prepared for this as part of their consultation.

*Yeah I don't see any problem really people go through chiropractors, herbalists and funny things and feeling all over you so people are happy to do that so yes I think they can be sort of not a problem with the pharmacist. (Participant 18 SP)*

*They would have to been trained to know why they're doing it and what they're actually looking for and what's within the normal span and what's outside of that. I suppose it's base-line observations type of, which almost everybody needs to do (Participant 15 SP)*

One participant felt that they would only be happy for the pharmacist to do straightforward physical examinations. Some patients do have firm boundaries regarding their comfort zone for being physically examined by pharmacists.

*I think so yes, I mean it is not as if you know, you are having an internal examination or anything is it, it is high blood pressure its not too bad is it..... As long it is only like I say blood pressure or diabetes and checks like that, no I don't think I would worry. (Participant 4)*

When participants were asked whether they would be happy for a nurse to physically examine them as part of the IP consultation they did not have any concerns. This is because nurses physically examine patients as part of their traditional nursing role. It is accepted that nurses can undertake quite intimate examinations of patients, and have to be present if a male doctor is undertaking an intimate examination of a female patient anyway. So as this does not represent a great change from the role they currently undertake this does not concern patients.

#### *4.3.3.2.4 Records Access*

With regards to non-medical health care professionals gaining access to patient's medical records, participants made comments regarding how important this was in

terms of maintaining patient safety and maintaining communication between different healthcare professionals that see the patient.

*Yes so it's sensible and that I'm not being prescribed things that I'm allergic to or whatever..... I think the more information they have on you the more likely they'll make the correct decisions..... Well if it's for your own good which obviously it's intended to be then it's necessary unless they've got this information they wouldn't be able to make mistakes. (Participant 8)*

*...there would have to be some information about the condition how it's been treated up to date from the GP or doctor or whoever is treating it that it's shared with the pharmacists and that they can see, well come to a more informed decision as to what direction to go. (Participant 15 SP)*

*Well I would hope there would be liaison between the pharmacist and your own GP in the same way on the other side of the coin I mean I've been here in hospital and to Oxford in hospital, and the doctor has always known what is going on. (Participant 8)*

A couple of participants were rather sceptical about the ability of the NHS to actually provide pharmacists with access to medical records on-line, and they also had concerns regarding whether the system would be secure.

*I suppose the sort of thing that struck me was that if the electronic records system really functions effectively in some dim distant future so if people were really aware of whose getting what I would probably be a bit more confident that it really doesn't matter whose doing what, to you anywhere in the country, they'll be able to log on and get your records at the right sort of level, and that shouldn't be a problem (Participant 10)*

Patients will need to be convinced that the computer records system is a secure system before they will trust a service provided by non-medical professionals, especially those being provided at non-NHS sites such as community pharmacies.

*...until proved wrong I would be happy provided that the system is properly secure I would be perfectly happy to see what's what. But then I don't have a very exciting history that anybody would find terribly interesting. But that's if the system works, but it has to be otherwise its not going to work is it? (Participant 10)*

*Well it is down to security isn't it, system security as long as only the pharmacist have got access to the system to enable them to see your records fine, I would rather them have access and give you the right prescription rather than not have it and make some mistake. So it's we'll have to trust people like receptionists ...so yes I think again we have to accept that there will be checks and*

*balances in place which restrict access to the records to only those people who need access. (Participant 5)*

The majority of participants seemed to have no objections to nurses having computer access to medical records, but a couple of participants still had reservations regarding the location of the access by the nurse. They were happy as long as access was via a GP surgery and not in a community pharmacy or supermarket nurse clinic. (Reasoning for this is further explained in Extrinsic Barriers: Location of IP p 204)

*I think from a nurse really and the conditions that they would work in, they are not going to work necessarily are they in a chemist shop but.....I would assume the nurses have the same sort of obligations as doctors so yes I don't have any problems with it. (Participant 18 SP)*

*I expect so because they'll be specially trained nurses they will not be the run of the mill. I don't think they'll go round and gossip about my entrails, will they? (Participant 13 SP)*

#### 4.3.3.3 Perceived Benefits

##### 4.3.3.3.1 Using healthcare professional's full potential.

There was some expression that the system that is implemented should allow full utilisation of a pharmacist's knowledge and skills in order to optimise patient care.

*I think if you are going to do it, do it, don't start saying you can prescribe aspirin but you cannot prescribe some, another painkiller. I think if you are going to do it, do it and we will take it that that's common sense if it's on there (Participant 7)*

Some participants also recognised that by non-medical healthcare professionals taking on this extension in their role, they may have increased job satisfaction and be able to use their skills more extensively. It was recognised that there were circumstances where nurses were "held back" in their job by having to ask the doctor for signatures at the end of a decision-making process that they had undertaken. It was also recognised that nurses' skills were being under-utilised in some respects as well.

*Well yes I think it would save a lot of time within the health service if they were able to do this because you go along to see the nurse and the nurse will say 'oh yes I think you've got so and so but you'd better see the doctor to get the prescription' whereas they could quite happily do the job. (Participant 8)*

*I don't think that nurses have been given as much credit and it's good to see how things have changed fairly recently in what*

*they're being allowed to do, so it's going in the right direction.* (Participant 15 SP)

*Also for the nurses too with the training that they go through and I think it's- it would be nice for them to take on more responsibility, some would like to.* (Participant 17 SP)

#### 4.3.3.3.2 Increase access to healthcare and decrease pressure on doctors

Participants perceived that the introduction of independent prescribing would bring benefits in terms of taking the pressure and strain off doctors, (which would enable them to be available to see the more complicated cases) and to increase the accessibility of healthcare to the public.

Participants placed an enormous amount of importance upon any new system having benefits to doctors in terms of reducing their workload, and this links in with their perceptions of doctors having a “god-like” status.

*If they came to a practice as you say if they had a clinic here say once a week or once a fortnight or something like that, I can see the advantage in that especially for the doctors to relieve the pressure on them.* (Participant 2)

*Well I know the poor GP's are under such pressure that they need to have some relief. I'm not saying that entirely cynically because no doubt they are.* (Participant 10)

There was also recognition that once that the doctor's workload had been reduced, they would be able to prioritise seeing those patients with more complicated problems which may reduce the likelihood of GPs making mistakes and it may generally have beneficial effects on all staff in the GP surgery.

*Well it certainly relieves the doctors (of) all the people sitting there with coughs and colds, all the people sitting there with in-growing toe-nails and what have you if you can go to the pharmacist and I think it would certainly speed up the waiting lists and recovery of people from different things, I cannot see that it would be a drawback I should think it would be a bonus.* (Participant 17 SP)

*I think not just doctors, everybody in a surgery these days they're under great pressure and the number of, if you sit in the waiting room, the number of people that flow in and out, it is quite staggering. There are lots of us older people now who need more attention than we used to.* (Participant 2)

The participants were also clear that the new system would help to increase their accessibility to healthcare.

*Probably availability assuming that the doctors were busy and fully occupied you may not be able to get in for a day or two whereas you might be able to get more immediate treatment (with independent prescribing). (Participant 8)*

*...it just increases the supply of expertise so as I said before, I think the only reason that I can see that there is a need for it is to ease the bottle necks, provide a quicker response to patients so it is like if you do it one-fold for pharmacists it will help so far but if nurses can do it as well it helps that bit more just a bigger supply of expertise in the market place. (Participant 5)*

One participant commented that for him, accessibility of healthcare was paramount and that he didn't want choice of where he wanted to go, he just wanted to be seen quickly when he needed to be seen.

*I'd go anywhere where that was quick and easy, readily accessible..... I'd go anywhere. I've got a problem it's a bit like choice OK I don't really want to know if there are four hospitals I can go to, I hurt, I want something done just tell me where I can go to get it sorted and I'll go there. I think that's it ...I don't mind where I go if somebody can prescribe something quickly and easily and get it done I don't really mind. (Participant 10)*

#### *4.3.3.3 Limitations*

Participants commented how important it was that pharmacist independent prescribers operated within clear, strict guidelines as you do not recognise what you do not know. They also felt strongly that they should keep within their area of expertise as well.

*...I mean you will always get a grey area or one that goes wrong but I think in the general nature of things and providing there are strict guidelines and people are very professionally qualified and that you know they are good people, observant people. I mean observant not only in observing things but observing the rules really. (Participant 18 SP)*

*...if it was quite clear that that pharmacist was a specialist in that field. But I'd be a little bit concerned if they were dealing with other things that they had not necessarily had experience with. ...but from a patient's point of view I would have thought generally the whole thing would be very favourable as long as it's quite clear within the limits of which it would be practised.(Participant 8)*

*...There has to be a limit they cannot just totally become independent. ... It's knowing your own limitations but how do you know? Well exactly and this is it and this is why I'm saying that*



*nurses and pharmacists they need to be given guidelines, they need to be given the indication...* (Participant 15 SP)

Similarly, participants did not have any concerns about nurse independent prescribing as long as appropriate limitations, checks and balances were in place. There was also a presumption that professionalism of the nurse involved would ensure the safety of the service.

*...if they're giving you treatments and I'm sure this would happen if you were prescribing drugs they always check and they come and ask you your name but there are certain checks that are made before you are administered any drugs and I'm sure that would be exactly the same with the prescription.* (Participant 6)

*No so again it's just how the policing system works again from my professional point of view, all this needs to be adequate, normal and adequate and as long as that works then fine. ... As long as the parameters are there and people are aware of what those parameters are, you know so they have to be clear then the observing is down to the professional discipline of the people involved.* (Participant 9)

For nurses, some participants thought that they ought to be limited to prescribing in single clinical areas that they specialised in, which wasn't suggested for the pharmacists.

*Does this mean that people like a district nurse will be able to prescribe within a limited range or whatever they know I suppose?* (Participant 13 SP)

*...as long as they're working within their specialized area and in some ways that would probably need to be one specific area* (Participant 15 SP)

*I think if the restrictions are in place about areas of specialism in independent prescribing then that is fine as well..... the restrictions will clearly play a part in what they can and cannot do* (Participant 5)

#### **4.3.4 General discourse about necessary controls for Independent Prescribing by non-medical healthcare professionals regardless of the type of professional.**

##### **4.3.4.1 Personal Characteristics**

###### *4.3.4.1.1 Knowledge of pharmacists and nurses*

Some participants described pharmacists as being the expert on medicines, as being very knowledgeable and appreciated that they have gone through extensive training and have appropriate qualifications. The participants trusted the advice that they were given by pharmacists, and supported the extension of their role into prescribing.

*...pharmacists have got quite good experience and they, I mean they just don't become pharmacists overnight and I think they are great and it should be used. (Participant 7)*

*They are I suppose in their own right in the field the expert, obviously they've gone through the necessary training to become a pharmacist and to carry out their duties to the best of their abilities so therefore yes, they're experts in their field..... I feel that they are probably the most qualified to advise which drug should be taken for what condition in my opinion. (Participant 15 SP)*

A few comments were made that were positive about nurses knowledge with regards to prescribing.

*...they build up a lot of knowledge over the years so they know that in a certain condition that this would normally be the appropriate course of treatment to follow. ... I don't want to discredit them because a lot of them have a lot of knowledge. (Participant 15 SP)*

*...my understanding of the training they go through, the qualification that they have to get, a nurse is somebody I would have complete trust in their advice and their guidance. (Participant 5)*

###### *4.3.4.1.2 Importance of training*

Some participants commented that as long as the pharmacists have had the appropriate training and maintain their competency, they had no concerns about pharmacists in a prescribing role. Although one participant commented that they would want community pharmacists trained to the same level as specialist hospital pharmacists, suggesting there is a perception that hospital pharmacists are more knowledgeable than community pharmacists.

*If you are going down this route then we need to ensure that we have the appropriate qualified personnel... but if these pharmacists were and I know they would have to be accredited to be able to*

*deliver that service you know, and if there was some certificate saying qualified then great and it's down to them to build up that practice.....if they are given a remit to prescribe and the responsibility is upon them solely they need to be made comfortable in being able to do that and if you need the appropriate training and if you haven't got that then it's going to be dangerous. (Participant 15 SP)*

*Well I think the devil is clearly in the detail, and as long as those parameters are set then again I wouldn't have a problem and from what you say, there are specialist pharmacists in hospitals and if the training and the what ever qualification is required are going to be the same for the high street pharmacist as they are for the hospital pharmacist, then I would feel more comfortable..... if they have had the training and then why not, there is nothing special about somebody who even the GP that suddenly they can diagnose if they have had the training and as long as the person has the training and has qualified in what ever way they have to show their proficiency and that is fine. (Participant 5)*

Participants thought that extra training was necessary if nurses were taking on the extra responsibility of independent prescribing.

*Well it's the same matter of how much training they've had.... If they're trained to do what it is they're prescribing for, I'm quite happy. (Participant 13 SP)*

*I think that they should be able to be in control of what they prescribe as long as they are properly qualified. (Participant 17 SP)*

#### *4.3.4.1.3 Importance of experience*

Some participants explained that they would only want experienced pharmacists to undertake prescribing.

*I think it should be someone with the experience you know, you cannot say that a chap starts work and after 4 years... it's got to be someone with a certain amount of experience (Participant 7)*

*I think that the training that pharmacists have gone through 5 years nurses at least 3, they have built up a good amount of knowledge and coupled with the experience during their training and as they are forming their clinical duties then they are building up their experience which will allow them to pass on I think relevant information and advice to the patients that will assist them in their well being. (Participant 15 SP)*

A couple of participants felt that it should only be more experienced, senior nurses undertaking independent prescribing:

*...like I said before, the head nurse and as long as she checks out how the junior nurse is doing, I don't think it would be a junior nurse's job to prescribe drugs but if its a head nurse yeah. (Participant 4)*

#### 4.3.4.2 Risk Management

##### 4.3.4.2.1 Close supervision by Doctor

A lot of the participants thought that the patient's normal doctor would be "supervising" what the pharmacist did in the clinics by somehow reviewing what happened during the consultation.

*I would hope that information what they'd been prescribing is forwarded to my GP at some point so that they can be checked on in that way. (Participant 8)*

*...maybe you need a flag on the system once a pharmacist prescribes there is a flag on the system that this customer has been treated by a pharmacist so that it should be fairly easy then for the GP to just occasionally flash through and pick out all these cases and just have a general overview of that really. (Participant 18 SP)*  
*I should hope that Doctor X if he has got spare time he would look it up and go oh yeah, yeah that's alright, double check it, that is what I would hope (Participant 11 SP)*

A couple of participants though that other methods such as a further consultation with their GP or a "repeat prescription" –type system would be used to supervise the pharmacist prescribing.

*...whether there would be a consultation afterwards with the doctor I don't know. (Participant 2)*

*I think probably it will be something like the surgery now where you like get your repeat prescription, and then on that repeat prescription you have to be reviewed by the doctor in six months time or whatever you know. (Participant 4)*

When participants were asked about clinical governance arrangements for ensuring the safe performance of nurse prescribers, a lot of participants assumed that the doctor in the GP practice would be closely supervising the nurses' practice, and be there to give advice when they need it as well. There also seemed to be an assumption that the nurses would recognise when they needed help, which may not always be the case. Participants did not seem to have considered how poor performance would be

identified, and did not seem to be that concerned about it either, as they assumed that the nurses would be well supported by the GPs and the information on the computer.

*I think it would have to be the doctor or some sort of body that would have a check up to see that she is not prescribing anything that she shouldn't be and giving patients something that they shouldn't be taking. But if they have got the family history on the computer you know I cannot see any problem. (Participant 4)*

*...although it's doctor x on this practice, he is always there in his room and if anything she cannot answer sort of thing she will go and see doctor x and he will probably have me in, but I haven't done that very often. (Participant 11 SP)*

*Well if they are not sure they can always pop in and ask the doctor couldn't they? (Participant 1)*

#### *4.3.4.2.2 Importance of referral*

The participants identified several areas which they thought were important in order to risk manage the introduction of independent prescribing. One of these areas was ensuring that the independent prescribers were able to refer patients to appropriate alternative care where necessary, and also they recognised when a patient needed referral elsewhere.

*...and if a pharmacist wasn't happy hopefully then they would say 'I'm sorry this is out of my area, you need to go and see a doctor. (Participant 6)*

*If there was any doubt, then I would expect and hope to be referred to a doctor. (Participant 8)*

*Yes there has to be a responsibility that number one if you're not sure that they are referred to a GP... (Participant 15 SP)*

A couple of participants discussed that they felt it was important with the system that nurses were able to refer to doctors when they felt they needed advice. This issue may not have been raised by many participants as it may have been presumed that the nurses would have and use this facility anyway.

*No not really because if they're going to prescribe something that they feel could be a danger to the patient hopefully they would be very cautious about it and perhaps go back to the doctor and say 'well what do you think'. (Participant 6)*

#### **4.3.5 General discourse of concerns regarding Independent Prescribing by non-medical healthcare professionals regardless of the type of professional.**

##### **4.3.5.1 Poor perception of nurses and pharmacists**

###### *4.3.5.1.1 Minor/Basic ailments only*

Participants had a poor perception of the pharmacist's role, knowledge, training and professionalism and hence believed that independent prescribing should just be used to treat very minor and basic ailments. This is what the public are used to consulting pharmacists for and hence are more comfortable with pharmacists dealing with their minor complaints.

*Things like a skin rash they can see that, minor things I would imagine like eczema or anything like that they can prescribe steroids for them small things... (Participant 6)*

*...on the other hand for things like the everyday colds and flu's and things of that nature well then I don't see any problem. (Participant 8)*

*I would for lesser illnesses if I thought there was anything radically wrong I'd go to the doctor.... ...If I thought I got a bit of bronchitis or flu coming on I'd try the chemist first. (Participant 13 SP)*

Some participants felt that if they had previously seen their doctor about the complaint or it was an appointment to continue a treatment they were already having, they would be more confident to then see the pharmacist about it.

*I mean if it was an experience I'd had before and knew what the treatment had been and the pharmacist then says 'yes this is what you ought to have' and I think to myself yes that's what I had before I'd be quite happy with that. (Participant 8)*

*I think it is ok if it is probably like me or like a lot of other people that just have a drug that you have every, you know ...Every day as a regular sort of thing you can take, I think that is probably fine with pharmacists, you know they can do that. (Participant 4)*

Some participants mentioned that they specifically felt that they felt comfortable with pharmacists dealing with hypertension, which may be because patients do not get any symptoms with hypertension and may not fully understand the complications that could occur if it is not well controlled. They therefore feel it is a "minor" condition.

*Yeah I mean it's a fairly basic thing taking blood pressure and temperatures and things like that, I am sure they -within limited*

*restrictions of course, you cannot talk about my sort of complaint to a, but normal run of the mill blood pressures, temperatures, ankle hurts or your knee hurts, I can understand it. (Participant 7)*  
*I think if it is like blood pressure they are checking, if it was anything serious then no I think I would prefer to see a doctor as long as they keep a check on your blood pressure I cannot see why not. (Participant 4)*

Some participants were very clear about conditions or treatments that they did not feel that pharmacist independent prescribers should be dealing with. Those patients that had hypertension mentioned that they did not want a pharmacist independent prescriber prescribing them chemotherapy.

*If it is controlled properly, yeah I mean I cannot see -I mean I don't know about chemotherapy, you know if there is a controlled thing then yeah I can see it. (Participant 4)*  
*I suppose generally, my only issue would be at the more extreme end you know talking about chemotherapy cancers this sort of thing. ...if it were a case of saying no the pharmacist has only the ability to prescribe within this list or these parameters which are outside life threatening... ...if we are talking about chemotherapy we are talking about life threatening disease as well (Participant 5)*

However, one participant illustrated that the public can perceive some very acute and serious conditions as being “minor” (due to it being a flare up of a chronic condition) and therefore poor knowledge about health can lead to misconceptions about what non-medical practitioners can safely deal with.

*I've got Crohn's Disease so that possibly could have been controlled by a chemist you know when you have flare ups and stuff without having to go to the doctor you could go to the chemist instead and say 'I've got a flare up, it looks as though it's the same thing' perhaps give me some steroids and they could prescribe them. (Participant 6)*

Some participants were very clear that they would only want to use the nurse independent prescribing service for what they deemed to be “minor ailments”. This included getting repeat prescriptions from them, blood pressure, diabetes, coughs and colds and thrush. If the condition was new and needed a diagnosis, they wanted to see the doctor first.

*Yes. For minor things. If I was really concerned then obviously I would want to see a doctor, he may say you can see the nurse. If it*

*was a rash any minor ailments I would probably go to see the nurse or a pharmacist because you feel you can spend a little bit more time. (Participant 6)*

*I don't imagine she prescribes if you had an unusual illness or something like that but if it's a follow on from run of the mill things, yes yes. I'd be happy enough about that. ...if it was for an illness or condition that had been a long standing thing, yes I would (use the service). I don't know if I came I wouldn't see the nurse if I wished to be diagnosed if you had something new, you would then see the doctor. (Participant 2)*

#### 4.3.5.1.2 Questioning ability to diagnose

Participants expressed concerns about independent pharmacist prescribers actually diagnosing conditions. These concerns were centred on questioning whether pharmacists having the ability to diagnose proficiently. Some participants felt that pharmacists were not skilled enough and wanted their doctor to be responsible for diagnosis, and were more comfortable with the pharmacist prescribing for them and monitoring their condition after the diagnosis had been made.

*I would be a little wary of them doing the primary prescribing. When it wasn't necessarily clear to the patient what the diagnosis was or likely to be but it's only if there is a doubt as to what the correct procedure might be. I think it would be a question of the patient and the pharmacist knowing and agreeing that yes that is what your problem is and this is the way to treat it. (Participant 8)*

*...if there are minor things then it is ok pharmacist but if there is anything like risky things then the doctor should diagnose and then after that pharmacist they can monitor, they can check progress and see how the patient is coping... (Participant 12 SP)*

*Well I think initially I would like to see a doctor you know for diagnosis and then I would be happy for X (Supplementary prescriber) to take the follow-up. (Participant 11 SP)*

The reasoning for the doubts and concerns about pharmacists' ability to diagnose stemmed from the training that pharmacists would have received to undertake diagnosis. Many compared the training of pharmacists to that of doctors and felt that pharmacists would not have had sufficient training in this area when compared to doctors.

*...I have probably got some questions and maybe lack of understanding about, you know how far their training will have gone to enable them to diagnose life threatening diseases. Umm so there is just a question mark in my mind there. (Participant 5)*



*Well you see, the doctors are trained in diagnosis whereas the chemists are presumably not. ....I'm not sure how well trained they'll be in diagnosing that's all...(Participant 13 SP)*  
*...they haven't gone through the same training as a doctor for diagnosis and that could be dangerous. (Participant 6)*

The major concern that participants had about their perception that pharmacists would not be sufficiently trained to undertake diagnosis was that this would result in misdiagnosis occurring.

*If I would have gone to a pharmacist because I've had a pain in my back she may have given me some muscle relaxants whereas it was the cancer returning, so that would have been a dangerous situation to be in. (Participant 6)*  
*Well presumably if they misdiagnose and give the wrong medicine, if it is too strong or too much of the wrong sort if I say it like that, then presumably some other symptoms will appear. If it works the other way, presumably whatever caused the consultation to take place in the first place will not be cured. Whether people seek a second opinion from the pharmacist or go back to the doctor I don't know. (Participant 9)*

Some participants expressed concern regarding whether nurses had the ability to diagnose as well as prescribe safely. This was also based upon a comparison of their length and depth of training with that which a doctor receives. It was also based upon the fact that they hadn't seen a nurse in that type of role before.

*I'm a little bit wary -I do think especially on the treatment that I'm having now, the nurses there probably know as much as the doctors on the drug side, prescribing and diagnosing I'd be a bit wary because they haven't gone though the same course you know training as a doctor for the diagnostic side. (Participant 6)*  
*I don't know that I would accept diagnosis and things like that from a nurse. (Participant 2)*  
*Well because it would be something new that I hadn't had before and I would rather have a doctor's opinion really you know I mean as I am at the moment I am quite happy with everything I get in this clinic but if something new comes up you know... I would rather see a doctor and then refer me back to the nurse and then the nurses take over again. (Participant 11 SP)*

#### 4.3.5.2 Intrinsic Barriers

##### 4.3.5.2.1 Age Issues

Strongly linked to the issue of change or acceptance was participants views that elderly people would struggle more with accepting healthcare provision from a non-medical practitioner. This was because older people have little experience other than doctor led healthcare and have an expectation that it is your right to see a doctor when you want to see one. All of the changes will be more difficult for older people to accept because they feel comfortable with their doctor and this development is unknown and unfamiliar to them.

*It is the change of attitude really which I think probably is easier for the younger people than it is for the older people to accept. I often see people speaking to the pharmacist so they must presumably ask his advice. So maybe some people are more in tune to that than I am. (Participant 2)*

*This is ageist but as I get older and GP's appear to be younger I'm not sure that I have any great faith in somebody who looks like their just out of college, again it's completely irrational I suppose. As long as they've had the training..... I guess that all of these things that are newly introduced are easier for people who have had less experience of whatever it was in the past. What I mean is actually it may well be that for some people who are older who have more experience of a particular regime they may well feel less happy about something different and that isn't an ageist comment I think it's just the reality whereas for my daughter's in their 20s if that's what happens then that's just what the future holds then they'll get on with it. (Participant 10)*

There was also some recognition amongst participants that older people can actually waste their medical practitioner's time by seeing them with more minor conditions that could be dealt with by non-medical practitioners.

*Obviously you have got to say that I am sure that this older population of which I am a part these days, there are a lot of people who go for the slightest thing to their GP and probably do if we are honest waste an awful lot of time of the GP and if there is anything that can be done to really give them the assurance that they need that they are being looked after and maybe just a word of comfort... (Participant 18 SP)*

When asked whether they would use a nurse prescribing service, one participant felt that she wouldn't want to as it involved change to the healthcare system which "older people" did not like.

*Perhaps younger people might -not older people like me. ...I think it's just that when you get older you get, you do get a bit set in your ways, a bit narrow with your thoughts really. I think if you're younger you accept change more easily and readily than when you're older. (Participant 2)*

#### 4.3.5.2.2 Covets traditional doctor model

It was clear that it was going to be difficult for some participants to accept a change in the provision of healthcare where they may not automatically see a doctor when they are ill. Some participants expected to see a doctor when they were ill and were adamant that they would see a doctor regardless of the severity of the condition. They could not visualise a pharmacist as an independent prescriber, because the pharmacist is viewed as being inferior to the doctor. (As discussed in "Prior experience of HCP's: Comparison of pharmacists to Doctors" p208)

*It's completely different to how we sort of treat our bodies isn't it really? If you've got something wrong with you, you feel you've got to go and see a doctor. (Participant 6)*  
*...I've been on the same drugs for a number of years now it seems to suit me and therefore -but I would still rather come to the doctor I really would, I hope I am not maligning pharmacists! (Participant 2)*

Participants also imagined it would be difficult for other people to accept this change in the provision of healthcare.

*There are all types of people. Some people are very belligerent and want to see a doctor... (Participant 6)*  
*Umm... I suppose there will be some disadvantages and there will be some people who really don't agree with not seeing a doctor as a lot of people are adamant that they do want to see a doctor rather than just see a pharmacist. (Participant 4)*

One participant pointed out that there may be specific issues around healthcare professionals actually diagnosing illnesses.

*I can see that a lot of people it's engrained that the doctor diagnoses things...(Participant 6)*

It was apparent that extending prescribing rights to pharmacists and nurses represents a major change that some patients will find incredibly hard to accept. Such a major change will therefore take some considerable time to establish itself and fully realise its potential.

#### *4.3.5.2.3 Dr is God*

The opinions that participants had about accepting other healthcare professionals as prescribers is also linked to their opinions of doctors. Doctors are held in extremely high regard and have status and due to this, patients said they trust them implicitly. Participants also appeared to be very submissive, never wishing to question what the doctor was saying or suggesting.

*...my philosophy is if the medical profession said that this is what needs to be done then we do it. (Participant 9)*

*Well I am fine with doctors and the you know with all of it like, I never argue and they always seem to sort me out so you know... (Participant 11 SP)*

Participants also stated that they thought other people held doctors in high regard, especially if people saw their GP more frequently and hence built up a closer relationship with them.

*Yes, you know I have paid my taxes, I have got to see the top man. (Participant 9)*

*I think some people clearly have a different view about their GP because they see more of them and people learn to love a particular GP and they really want to go and see them. (Participant 10)*

One participant also explained that he thought opinions may be different according to the area that you lived, inferring that in a rural area you would have a closer relationship with your doctor.

*If you live in a very urban area then you might have more recourse to a pharmacy than I do for instance living in a rural area where the GP is the king (Participant 8)*

It is therefore difficult for patients to accept that anyone else could possibly do as well as a doctor in the prescribing role and therefore such services would be a sub-standard or second-class.

#### 4.3.5.2.4 Issue of change/acceptance

As alluded to earlier, (Covets traditional doctor model p201) this development is a major change in healthcare provision and as such, participants were very wary of it. When asked what they thought about pharmacists being able to prescribe, participants described being worried about this development, as prescribing entails a lot of responsibility. They did not think that the development was necessary or that it would actually be of benefit.

*Worries me... Well there's so many medicines like -and there is so many different patients, it's a huge responsibility... we're lucky here, we've got a very good practice but other people aren't fortunate aren't they, so I don't know if my opinions are fair but I worry really a little bit about it. (Participant 3)*

Participants raised the issue that people do not like change and that there will need to be a culture change in order to achieve acceptance of this development, and for people to be confident about it as well.

*...it's a big big change to get people to think well I'll go to the ...  
.....It's going to take a long time for people to go to a pharmacist.  
...Changing the culture, getting people to accept that pharmacists and nurses can prescribe (Participant 6)  
Yes I mean people will resist change, people don't like change, they are comfortable with what they have got, they may not like what they have got but it's a comfort they know what they are not comfortable with. (Participant 9)*

However, some participants were more positive, stating that it was a case of acceptance that if a healthcare professional is qualified to prescribe then it does not matter which profession they are. Also it was suggested that time was needed for people to “acclimatise” to the new development.

*...but I think if people get used to the idea umm you know they would be more acceptable definitely. (Participant 4)  
I mean I think once you accept the principle that they are qualified to do what they do then there is no difference in that case coming into a GP surgery and having made an appointment to see Dr x and coming in being told for what ever reasons he's unavailable you are going to see so and so and you just accept it. (Participant 5)*

One participant raised the issue that the development might involve **more** work for the doctors.

*But if a patient is not happy with what the pharmacist prescribes for them it could fall back on the doctor, it could be more work and more headaches for the doctor. (Participant 3)*

A suggestion was also made that the only way that some people may accept non-medical prescribers was if they were already having an inferior service from their GP practice, and hence were not going to be concerned about having an equally sub-standard service provided by non-medical prescribers.

*We don't know the running of every organisation do we? There may be people that welcome this, because of treatment that their having or because of difficulty their having with their surgeries (Participant 3)*

#### 4.3.5.3 Extrinsic Barriers

##### 4.3.5.3.1 Location of IP

Participants clearly expressed that they felt that pharmacist prescribing clinics in community pharmacies and supermarket pharmacies were seen as being inferior in terms of quality when compared to those taking place in GP practices and hospitals.

This is because they feel that having that attachment to a GP practice or hospital gives the pharmacist clinic approval and credibility from the doctors, and somehow makes them “official”. It also suggests to patients that the doctors can keep a close eye on what the pharmacist is doing. The participants also felt that clinics that were run in GP practices or hospitals would have better facilities and support available which would make the patients feel more comfortable to use them.

*.....if there was an on-site pharmacy in the GP surgery, now fair enough, yes it would mean you having to come in to the surgery which may or not be an inconvenience, but it just may add that little bit of creditability, security to the pharmacists that this is somebody who is employed or attached whether their independent or not I need to have the feeling that they're attached to the surgery and they've got approval from the GPs on site, so they should be trusted, but again not to take anything away from community pharmacists because they do build up that rapport with the patients that they see. (Participant 15 SP)*

*I suppose because if you go to the hospital then you've got all the departments and that are there and you can be referred to straight*

*away rather than letters going backwards and forwards and with the doctor he's got I should imagine, greater pulling-power than a pharmacist would have, I don't know what the powers they would be given, pharmacists whether they could rush you through or whether they would have to refer you to a doctor to refer you to a hospital. (Participant 17 SP)*

The following participant felt strongly that supermarket pharmacies would not be a suitable location for a pharmacist prescribing clinic as he felt that the image and ethos of a supermarket negated their ability to provide quality healthcare.

*I don't think I would go to Tesco's to get, I just wouldn't do it quite frankly, the power of supermarkets to me is a sore subject, I wouldn't allow prescribing pharmacists really in Tesco's. ...but Boots you see you associate with healthcare and medicines and medical issues that I don't have a problem with, but Tesco's or Asda you know it is the image of cut price -cut this and cut that you know and I just wouldn't like that at all really. It is ok if they are going to make up prescriptions, but I don't want them to be prescribing, mind you with customer loyalty and I'm probably not speaking for the general population maybe they feel that you get a...To me that brings medicine down to the tacky end but you know if people are prepared to go to Tesco's and get a diagnosis and it saves their life well fair enough but I just don't feel comfortable with that at all really. (Participant 18 SP)*

When asked whether they thought it would be useful for nurses to prescribe, a few participants expressed that they would only be happy to use nurse independent prescribing services if they were within the GP practice. As for pharmacists above, being within the practice infers that the GP is “supervising” the service and also that the nurse can quickly get medical help if necessary.

*...Yes I think so within the practice because they would be in contact with the doctor if they had any doubts the doctor would probably be around anyway so within the practice (Participant 6)*

## **Section 2:**

### **4.3.6 Discourse regarding pharmacists as independent prescribers**



Figure 7: Summary of discourse applicable to pharmacists only. (Section 2)  
Emerging Themes

### **Prior experience of HCP's**

- Comparison of pharmacists to doctors
- Comparison of pharmacists to nurses
- Comparison between primary and secondary care pharmacists

### **Poor understanding of pharmacists**

- Pharmacist training
- Barrier-public education

### **Intrinsic Barriers**

- Negativity re: physical examination
- Negativity re: pharmacist image

### **Extrinsic Barriers**

- Lack of privacy
- Practicalities

### **Support for IP**

- Accessibility of community pharmacies
- Positive about traditional pharmacist role
- Pharmacists are capable of diagnosis
- Location of IP unimportant
- Pharmacy care allows greater patient independence

### **Risk Management**

- Clinical governance
- Ethics
- Safety Concerns
- Importance of monitoring
- Negative about access to medical records

### **Relationships**

- History of relationship
- Importance of patient experience
- Importance of trust

#### 4.3.6.1 Prior experience of health care professionals

##### 4.3.6.1.1 Comparison of pharmacists to doctors

The majority of participants made comparisons in terms of knowledge and training. Although there were a couple of positive comments made by participants when comparing pharmacists and doctors,

*.....they're knowledge of drugs -I suppose it could be that their knowledge of drugs is better than a Doctors.....(Participant 2)*  
*.....in fact I think sometimes they know just as much as a doctor really. (Participant 1)*

-the majority of participants felt that the pharmacists were inferior to the doctors in this respect.

*I presume a doctor gets a lot of training on what to prescribe for what a pharmacist wouldn't get that sort of training would they? ...The doctor knows a lot more about you generally by looking at you by feeling your pulse, temperature and can know a bit more about what's wrong with you. The chemist's just 'oh it sounds like you might have a heart problem' or whatever..... (Participant 13 SP)*  
*.....a doctor trains for years and years a lot longer than a pharmacist and I always believe the doctors are kept up to date with medicine. (Participant 3)*

It would seem that also the status of the pharmacist is considered to be inferior to that of the doctor as well, and it is recognised that this may be a considerable hurdle to overcome.

*I suppose ones perception of the pharmacist is kind of shopkeeper whereas the GP is still held in some regard isn't she or he -in a different kind of way which is likely to be quite a hurdle to get over.....(Participant 10)*  
*They're only one-step down from the doctor really aren't they? (Participant 17 SP)*

#### 4.3.6.1.2 Comparison of pharmacists to nurses

There were quite mixed opinions when comparing nurses to pharmacists, and opinions made differed according to past experience the participant had with the relevant health care professional. Some participants did not mind which of these two health care professionals they saw for prescribing services, stating that their level of training would be similar, and that it would be matters such as accessibility that would determine who they saw.

*It would be whoever you could get into more quickly. (Participant 6)*

*.....you take blood pressure as an example and my experience is it is a relatively simple thing and they take their reading and then make a decision based on whatever reading they get. The degree of training format I would suspect wouldn't differ very much between the pharmacists and the nurses.... (Participant 9)*

Some participants preferred to see a pharmacist prescriber, and this was because it was felt that pharmacists would have superior drug knowledge for prescribing.

*...the pharmacist should have more experience on drugs that are being prescribed because a nurse will not have gone through that side of it she may see the ailments and be able to diagnose for minor ailments because she'll have come into contact with a lot of people with minor ailments. But prescribing the drugs may be out of their area. (Participant 6)*

*...my perception is that pharmacists might be more knowledgeable and umm have a better understanding of some more serious areas of illness again only because what I know about the training but its my perception and I suspect maybe that I would feel more comfortable with seeing a pharmacist if my own feeling was that there was something seriously wrong with me...(Participant 5)*

Another participant had other requirements before they would make a decision as to which health care professional they saw.

*...it would depend on what the conditions were, it would be dependent on the condition and it would depend on the expertise of the nurse or the pharmacist. (Participant 15 SP)*

Most often, the nurse was the preferred prescriber and this was based solely upon the participant being more familiar and comfortable with the nurse in that role due to past experience of being seen by a nurse for appointments. However, participants did make

comments that if the GP surgery was closed, they would then have no problem with going to see the pharmacist instead.

*Again from my own experience in my own practice and the pharmacy that I use I think I'd prefer to see the nurse rather than the pharmacist but on the other hand if it was out of surgery hours and I needed advice on something I certainly wouldn't object to that to having to go to see a pharmacist in the first instance.* (Participant 8)

*...if I was here then I would probably come and see the nurse because I am used to seeing her but if the surgery was shut and I had to go to the chemist then I would go to the pharmacist yeah.* (Participant 4)

#### 4.3.6.1.3 Comparison between primary and secondary care pharmacists

Hospital pharmacists were considered to have much less contact with the public (or none at all) and to be more impersonal than community pharmacists, whom participants often felt they built up relationships with over time.

*They're far more helpful than the hospital ones* (Participant 6).  
*.....I don't know I suppose in some respects in a hospital they're more impersonal because you don't know them because you only come- I've only ever used it once so really I don't know whereas when I go to my local pharmacy I'm known.* (Participant 8)  
*I think I have come across a couple in hospitals when I have been to the eye hospital and that's with you know treatment for my eyes umm and they are not so personal they just give you the prescription and off you go.* (Participant 4)

Although it was considered that community and hospital pharmacists had the same qualifications, participants either thought that there was no difference at all in the day to day jobs that the two types of pharmacists undertook 'A pharmacist is a pharmacist isn't it?' (Participant 3) or they recognised that hospital pharmacists dealt with more specialist and toxic drugs

*...my chemotherapy wouldn't come from a local pharmacist it comes from the hospital pharmacist so they are dealing with probably more high toxic drugs and so they have to be more careful.* (Participant 6)

*I wouldn't think qualifications were any different but I would say that a hospital pharmacist unless they're in the general pharmacy like x (the community pharmacist) they'd got a specialist subject which they would be trained to, whereas the pharmacist in the chemist shop was very much like a doctor more general...*

*.....it's just that it's a broader spectrum that they have to cope with whereas those in hospitals like x (the supplementary prescriber) for cancer and other people they specialise in those, probably not so good at coughs and colds. (Participant 17 SP)*

Some participants felt that the service being provided by hospital pharmacists was superior to that which you get in a community pharmacy, as a result of their specialism.

*I know they're a little bit better in the hospital, they're more concerned what you're taking and everything. (Participant 16 SP)*  
*I'm supremely impressed having suddenly needed chemotherapy that every Friday when I turned up my little package of stuff was there in the bag it just happened I didn't know where but something was going on here and that was very impressive and clearly that's a whole lot more than what goes on in the average high street pharmacist. (Participant 10)*

It was also recognised that a difference for community pharmacists was their managerial and retail responsibilities.

*...suppose the main difference would be that in a shop many, on many occasions not on all as I understand it, they also manage the shop so they have a responsibility for the retail management side of the business, so that is the big difference I guess. (Participant 5)*  
*...Not in relation to the prescription drugs, I think they get people in the, outside will probably have more diversion into the retail type of goods you know they become more salesmen perhaps of the non-prescription drugs. (Participant 9)*

#### 4.3.6.2 Intrinsic Barriers

There were commonly held beliefs that participants held which prevented them from accepting the development of non-medical prescribing.

##### 4.3.6.2.1 Negativity re: physical examination

When pharmacists become independent prescribers they are going to need to physically examine patients. One participant felt very uncomfortable about a pharmacist having to do this because they were not used to pharmacists having a

“hands on” role. Again, it is a major change in the role that a traditional pharmacist has and therefore may take some time to be accepted.

*No, I think if that was needed I would rather go to the GP.*  
(Participant 1)

#### 4.3.6.2.2 Negative Pharmacist Image

Some comments were made which suggest that the pharmacist is not held in very high regard by some people due to a lack of understanding of the job that they do. Dispensing medication is not viewed as being a very complicated task, and the public do not understand the “safety role” that pharmacists have of also ensuring that the medication that has been prescribed for the patient is appropriate and safe for that patient.

*But they're kind of unknown to most people aren't they the person, probably not in a white coat, but hovers around in the background, who actually makes you wait 20 minutes for a prescription to be...*  
(Participant 10)

#### 4.3.6.3 Poor understanding of pharmacists

##### 4.3.6.3.1 Pharmacist Training

Although some people correctly presumed that pharmacists received degree-level training for quite a few years in order to qualify as a pharmacist,

*I would imagine about 7 years. Going from University then into training I would imagine it's going to be a fair time... It's not something you do in 2 years.* (Participant 6)

It was apparent that there was also a deficiency in a lot of people's understanding about the training and knowledge of pharmacists, and this affects their confidence to consult a pharmacist in a prescribing role.

*I don't know to be honest I don't know a pharmacist. ...I don't know beyond the fact that they make up prescriptions..... I still wouldn't have the confidence but probably I think because I really don't know what a pharmacist's job is. What his knowledge is really or her knowledge.* (Participant 2)  
*Some medicines are probably much more dangerous to prescribe than others and presumably you need special training to know*

*when they should be used, would a pharmacist know that?*  
(Participant 13 SP)

Once that participant's were told the length of training that a pharmacist has, they did concede that over such a length of time, their knowledge must be substantial.

*I didn't realise it was such a long, long training. So they must learn a lot in 5 years.* (Participant 2)

#### 4.3.6.3.2 Barrier- Public Education

Some participants were very aware of the need for public education to occur in terms of the public understanding the expertise and experience that pharmacists have and the code of ethics they are bound to. They suggested that current levels of public education were a major barrier to the development of non-medical prescribing.

*So I think really you would have to do an awful lot of public education convincing people of the professional expertise of the people and the fields in which they are acting in and secondly their codes of professional conduct rules....* (Participant 18 SP)

*Biggest barriers -well public education number one -my experience has been that people are really extremely ignorant and its not surprising, about how the entire system works, so most people have complete misconceptions just like I do about who these people are and what they do (i.e. pharmacists).* (Participant 10)

*...it's all going to come down to information or education and if this is the route we're heading towards the public need to be informed of the service of the qualifications that these individuals have and the experience that they've developed and they need to sell it. It needs to be sold positively so that we know that if we go and see a prescribing pharmacist or nurse that we know we're going to somebody who is qualified to do it and that they've had at least 5 years experience or whatever the job spec. says.* (Participant 15 SP)

#### 4.3.6.4 Extrinsic Barriers

##### 4.3.6.4.1 Lack of privacy

One of the barriers to community pharmacies developing successful pharmacist prescribing clinics is the commonly-held perception that there is not enough privacy in a community pharmacy.

*...also I think there is no privacy in a pharmacy is there? I don't think there is anyway... You kind of chat over the counter for all and sundry to hear. (Participant 2)*

*We've got the pills and everybody's ears are flapping aren't they? But in your local pharmacy you're quite likely to meet your neighbours and they know as well and they're 'oh you've still got the same old trouble with the? (Participant 10)*

#### 4.3.6.4.2 Practicalities

Participants discussed how community pharmacies were going to cope with running pharmacist prescribing clinics, and many practical issues were raised.

*...you don't want to be put out in the store room to be examined, providing it is professional, no it wouldn't, the only analogy I can draw is that basically opticians these days, they are set out to do vision express or something like that. They are set up in a very clinical way with consulting rooms and that and the whole thing looks professional and feels professional providing it was like that, then I wouldn't have any problem but if you were asked to sort of you know step into the broom cupboard while I sort of look in your tonsils then no, it has got to be properly licensed, I think licensed premises for consultation really so standards. There are hygiene factors and all sorts. (Participant 18 SP)*

*But many of them are mighty cramped by the time you've waded through the rubber gloves and other stuff. Yes ok people would need to be equipped to do the job and the premises need to be adequate for the purpose that they are going to be used... (Participant 10)*

Participants also commented that if community pharmacies are going to become more like a GP practice with a waiting area for appointments and therefore they would have difficulties with having enough room for everyone.

*...they couldn't possibly cope with numbers couldn't possibly have everybody's I don't know how many patients there are in this practice, thousands probably. (Participant 2)*

*I don't know whether a chemist shop would turn into a place like this with queues and waiting rooms or not. If it became a general service it might well do and then you'd have to have a waiting room as well, there isn't much room in our chemist shop for more than 2 or 3 people. (Participant 13 SP)*

One participant commented that if extra prescribing clinics are going to run in community pharmacies then the pharmacies would have to take on more pharmacists to keep up with the workload.



*...they could well find themselves in a position that the surgeries find themselves where you've got too many patients and when you've got a time constraint, I think it would mean that the community pharmacists are going to have to grow, you cannot have a one-man band can you? You've got to have a few of you because of the consultations and then you're going to have those who are dealing with the prescriptions. (Participant 15 SP)*

Another practical issue that a participant brought up was how would the customers know what the community pharmacist specialised in? This would be an issue if a person wanted to see a pharmacist prescriber for a particular condition without being referred by their GP. The community pharmacy will have to advertise the prescribing clinic and what conditions the prescriber dealt with to let the public know about the service if it was run as a private clinic. Perhaps this also shows that patients are having difficulty in visualising healthcare provision in such a radically different way.

*...but how do we know, how do we know if a pharmacist is trained in say heart problems or rheumatology or whatever. I mean if I see x she's a specialist in that field but a chemist is a general person isn't it. How will you know what the specialities are?(Participant 13 SP)*

#### 4.3.6.5 Support for Independent Prescribing

##### 4.3.6.5.1 Accessibility of community pharmacies

Participants expressed that community pharmacies are very accessible in terms of location on the high street and the hours they are open. It was also recognised that the advice of pharmacists themselves has always been very accessible. This was seen as an advantage with respect to them offering pharmacist prescribing clinics.

*...it is easier to drop into your local pharmacist (Participant 18 SP)*

*...pharmacists are open all day long presumably so you have got more time range to get over your problem. (Participant 7)*

*...sometimes shops are a bit closer to where people live and a doctors surgery is a bit more maybe out of the way. (Participant 4)*  
*See you've always been able to ask for a chemist opinion haven't you? (Participant 13 SP)*

#### 4.3.6.5.2 Positivism about the traditional pharmacist role

Participants made plenty of positive comments about pharmacists in their traditional role, which provides some support for the extension of their role. Participants speak very warmly about their local pharmacist. They valued the advice that pharmacists gave them, how accessible they were and how helpful they have been.

*...the actual local pharmacist we have got is very good, you can go to her and ask for her advice. We've got a new lady in the house and she got a cold and we went and she was very, very good, what she advised. ...and you do find that they do have more time for you and it would be very sad if we lost them. (Participant 6)*

*I told you I have had asthma for 10 years and what with the morphine and the other things I need to have someone that I can trust and talk to and I have found them very helpful (Participant 7)*

*I find on the whole they're very good and very helpful to what they used to be. I think they seem to be more trained and more up together with what's going on than they used to be and I think it's a good thing, it relieves the doctors of a lot of pressure and you can go down to the pharmacist and say I've got problem can you help and they can have a look and say yep I've got something here I can give you. (Participant 17 SP)*

#### 4.3.6.5.3 Pharmacists are capable of diagnosis

Some comments were made that as long as prescribing pharmacists were working within clear guidelines, were able to refer patients and were trained appropriately they believed that pharmacists were capable of diagnosis in some areas.

*The diagnosis side I think again providing that they are very clear guidelines and the right referral procedures, I think yes many minor ailments could be looked after by pharmacists prescribing really... (Participant 18 SP)*

One participant felt that she already felt that pharmacists were already working in an extended manner and therefore felt that they would be capable of diagnosing.

*...I think pharmacists are quite competent in doing things like that, like I say they now their doing my blood checks, doing the diabetes tests in the local chemist and things like that so I should imagine that they would be able to pick up quite a few things from patients. (Participant 4)*

#### 4.3.6.5.4 Location of IP unimportant

Some participants did not consider that the location of the pharmacist prescribing clinic was an issue, as long as the premises were properly equipped and the pharmacist was competent and professional, it should not matter. Interestingly, one participant, when considering what will be the most difficult location for patients to accept pharmacist prescribing clinics at, chooses a supermarket pharmacy as being the most extreme example.

*It doesn't bother me at all, it's almost as long as whatever is wrong with me is put right... (Participant 9)*

*No I don't think so no. I'm assuming that people in this sort of position are equipped to do the job competently and professionally and the premises don't really matter so it could be at Sainsbury's. (Participant 10)*

*No I mean clearly it wouldn't be doing it over the counter, you have to presume there is going to be a private room somewhere so as long as there are adequate facilities there. (Participant 5)*

#### 4.3.6.5.5 Pharmacy care allows greater patient independence

One participant felt that in order to be more in control of your own healthcare, he would prefer to use a pharmacist prescribing clinic as care by a GP means that you lose control of your own care. This may lead to some patients relying on such services as a way of avoiding seeing their GP. However, it is envisaged that most services would be referral-based from the GP.

*We have got a chemist in the next village which I think it is a Lloyds pharmacy that does blood pressure and the cholesterol testing, you know I would probably be more inclined to drop into there rather than my GP funnily enough. I suppose in a way now this is an interesting point to me anyway whether that is because you can go in and find out but still remain in control of the situation, now once they go on record and that goes through to your GP whether that, it is a silly thing isn't it really but one feels that one should go into your doctors, into the sort of chain there really you tend to lose control of things because you are sort of coerced and not forced. (Participant 18 SP)*

#### 4.3.6.6 Risk Management

The participants discussed many factors which they thought would need to be in place in order to have a safe and effective system if pharmacists were prescribing.

#### 4.3.6.6.1 Clinical Governance

With regards to clinical governance, there was an expectation amongst participants that there will be appropriate checks in place in order to ensure that the new prescribing system is appropriately policed. Participants had various ideas of methods in which this could be done. There was also recognition that the patient themselves would also be responsible for flagging up poor performance.

*I suppose there has to be a governing body that makes sure that if you've got a pharmacist that was prescribing, prescribing and prescribing there's going to be somebody that is going to say 'hang on' what's this coming out if there were drugs going out then there would be a check on that I would imagine. (Participant 6)*

*Well certainly I think random type of interviews with patients would be useful but certainly periodic examination of the patient's medical records and progress would be important, I think that is basically the only way you could do it. You cannot have somebody sitting there watching over your shoulder all the time that is a waste of resources, but I would have thought some form of random sampling of his patients. (Participant 18 SP)*

*It's only a patient who will know whether he's feeling better or not. If he gets the wrong medicine but then if you're dead you cannot complain about it. (Participant 13 SP)*

One participant brought up the Harold Shipman case and remarked that a proper monitoring system has to be in place in order to identify poor performers, and that the service needs to be transparent so that service users are aware of the way that performance is checked upon.

*...that it doesn't become like a back-street secret society, you know what I'm trying to air towards, in that it is all open and above board all kosher that you don't get individuals and I suppose what I'm thinking of and don't take this the wrong way, it's the Harold Shipman scenario where you may well get somebody who doesn't -who underperforms and there would have to be a monitoring system for the pharmacists to ensure that they are prescribing the appropriate drugs and that if there are any adverse problems incidences with patients that weren't being dealt with correctly. (Participant 15 SP)*

Some participants were aware that the system should have the same type of monitoring that doctors have as the pharmacist prescriber would be providing the

same type of service. They therefore asked questions about how doctor's prescribing is monitored.

*Who checks on the doctors in a hospital? (Participant 6)*  
*Whether they're prescribing the right stuff, well the same applies to GP's -how are GP's checked upon on a day to day basis they have to do their own thing? (Participant 10)*

One participant also commented that he thought that reassuring the general public that the new system is appropriately monitored and is therefore safe will be much more difficult.

*I expect there to be rigorous arrangements in place to make sure it is (a safe system) and reassuring the general public that that's the case would be quite difficult I suppose (Participant 10)*

Another participant thought that it might be more difficult to risk manage a prescribing service in a community pharmacy where a pharmacist may be working in isolation.

*Unless there was somebody else qualified within the same establishment who could go in and have a quick chat and sort of check which might be possible in some cases if it is a large enough shop and they have got more than one pharmacist although the time that that would take, I suppose the only other way of doing it would be to do some sort of spot checking just to make sure that generally what the pharmacist is doing is correct (Participant 5)*

#### 4.3.6.6.2 Ethics

One participant brought up the issue that he didn't know whether pharmacists had to conform to the same type of Hippocratic Oath as doctors do. It was felt that the general public would need reassurance that pharmacists are bound by a code of ethics which would prevent them from sharing any confidential data about the patient with anyone not involved with their medical treatment. There was also a lack of confidence that even if they did adhere to some form of ethical oath that it may not carry as much weight as that taken by a doctor. There was therefore a level of suspicion about whether a pharmacist would really keep patient information confidential.

*I suppose what many of the public may want reassurance on is whether a pharmacist is bound by the same rules of ethics and confidentiality as your doctor, so you tend to sort of assume that*

*with the doctor you know it, but I am not sure that I would I would assume that a pharmacist has a confidentiality patient confidentiality issue but I wouldn't be sure and even if there was I am not quite sure that I would genuinely feel that it had the same sort of weight as a doctor is it the Hippocratic Oath or something that they take, I don't know what pharmacists take, what oath they take ..... I think that (that pharmacists adhere to a code of ethics) would probably need projecting in the public domain so that people are aware that there is a strict code for pharmacists. (Participant 18 SP)*

#### 4.3.6.6.3 Safety Concerns

Some participants had more general safety concerns about the independent prescribing system. Some participants were not very able to fully explain their concerns, but they centred on pharmacists prescribing the wrong things for the patient, especially for what were considered to be more “serious” conditions.

*Because they might prescribe the wrong thing mightn't they? (Participant 16 SP)*

One participant had concerns about whether the pharmacist would have all of the information available to them that would be necessary to make safe decisions about a patient's healthcare.

*...to what extent the pharmacist will be aware of any issues about your health which might impact on what they prescribe. I guess there are some medicines, some medication which doesn't necessarily go well with something that you might already be on if that's the case, so other than asking the patient what medication are you already on then umm is there a danger that the pharmacist might find themselves in a situation where they are prescribing something which actually when it is taken in conjunction with something else that they are taking is dangerous? (Participant 5)*

Some participants recognise that the safety concerns are applicable to any healthcare professional who is prescribing. However, one participant felt that once a prescriber is experienced, this risk would be reduced.

*Well is any system safe really, I mean you go to the doctor and they prescribe you're in their hands so if the pharmacist is clued up on a particular area then he's really no different than a doctor in that respect, from my opinion anyway. So it should be the same. (Participant 17 SP)*

*Well doctors make mistakes don't they? -and one would assume that unless they've had a lot of experience they would equally be prone to mistakes (Participant 8)*

#### 4.3.6.6.4 Importance of monitoring

The participants did not have a lot of comments about monitoring of conditions that the independent prescriber was prescribing for, but some did state that it was important for their on-going condition to be closely monitored by the independent prescriber. As the public are used to pharmacists recommending things over the counter without undertaking any monitoring or examination, they are wary as to whether the pharmacists would actually properly monitor the condition as a doctor normally would.

*...if the pharmacist was able to have that sort of system that they, despatch reminder cards or even if obviously if they are prescribing them say every now and again or every 6 months note on the prescription to say you know come in for a test. (Participant 18 SP)*

*Well I presume they'll do the tests if they are suspicious of blood pressure. They will not just sort of look at you and say 'you need a bottle of this'. (Participant 13 SP)*

#### 4.3.6.6.5 Negativity about access to medical records

Participants brought up various issues surrounding pharmacists having access to medical records.

One participant thought that pharmacists should only be given certain levels of access to a patient's medical history and that they could be denied access for certain conditions that the patient had. However the patient did concede that that may not be a safe prescribing system, and upon further reflection concluded that it was probably that pharmacists shouldn't be treating certain conditions as opposed to access to medical records that was the issue.

*...whether it is possible to have levels of disclosure, I don't know it may not be possible because who knows, but I don't know enough about medical conditions to know whether it is possible for instance in my condition, I am not sure that I would like my whole history of my cancer record to be down at pharmacy level but would it be dangerous to prescribe anything without knowing that? I don't know?... I would have thought that certain conditions may preclude treatment by a pharmacist and again if you have got this*

*wonderful technology you should be able to flag up that if the pharmacist is looking flags up yours records and there is a bar on it saying you know refer to GP, that would be the other issue really. (Participant 18 SP)*

This participant also raised the issue of access to medical records in community pharmacies as being particularly disagreeable, along with other participants. This is because community pharmacies are viewed as being “non-NHS” with a lot of non-clinical “shop staff” who may inadvertently see medical records without being bound to any code of ethical conduct. Also the participants were not confident about the security and confidentiality of their records in these premises.

*...if you are talking about -I call them chemists, there are a lot of people in there because there is a retail side to the business and there are non medical people in there obviously, the access to those records would be a problem, I think all NHS staff even volunteers are bound by strict codes of confidentiality when they are handling records, you would have to consider that I think for staff of and I am not sure that I would actually like, certainly I mean I live in a village and you sort of know these people, they work around the shops in the village you know, you wouldn't really want your medical records even on a confidentiality basis, or confidential basis rather known by those sort of basically shop assistants. So I think that would be an issue the protection of medical records within a pharmacy. (Participant 18 SP)*

*I think the public will feel a lot more comfortable if they were going to be allowed access to your records, I think if the pharmacist was attached to the surgery. I would definitely feel more comfortable like that. (Participant 15 SP)*

Some participants had concerns as to whether there was enough information technology capability to provide medical records access in all community pharmacies and other clinic locations and whether the information technology system would be reliable enough as well. Some participants viewed the IT capability as being a major barrier to the development of the independent prescribing system.

*Presumably they must instruct the doctor that they have done something and if they have got this computer link up -this is the only thing that would worry me because we hear so many times about computers going down, both my sons work in computers and they are always saying oh its gone down and it has happened in here hasn't it things have gone down. (Participant 7)*

*The IT and systems implications in doing that and presumably as I say a place like x (town) the issue is how any one pharmacist in a little shop in a high street in x (town) can have access to records*



*which are held on servers in umpteen different GP practices around the area... And I think the bigger issue is the solution to that is that all GP's locally have records that are on an IT system and somebody centralising some mega central data base run by who ever, that is the bigger problem because the access issues are more serious (Participant 5)*

These concerns over the IT capability lead to one participant commenting that he would be concerned that the independent prescriber would have enough information about the patient to safely prescribe as well.

*...providing the information is available, this is I repeat myself don't I? -but this is the only thing that really worries me or would worry me, is that they have got the information they need to prescribe this drug and it doesn't affect the other drugs that I am taking. (Participant 7)*

Therefore there is considerable feeling that the current IT support for this development is not going to provide a workable system at the moment.

#### 4.3.6.7 Relationships

##### 4.3.6.7.1 History of relationship

Participants suggested that the popularity of independent prescribing will take some time to increase whilst patients build up their relationship with their pharmacist prescriber. The public are not used to pharmacists being prescribers and there will need to be a period of relationship building in order to promote trust. Once these relationships are more established the independent prescribing clinics may be used more frequently.

*I think from my experience generally speaking, the better one to one experience you have with an individual the more you're going to trust them and believe that they are actually making decisions for your welfare. (Participant 15 SP)*

*I mean I think the only issue you might have is that because you have a particular problem and you have been seeing that same doctor for all the time you have had the problem you might want to come back another day and see him because he knows the problem (Participant 5)*

*...and people hopefully will not be so frightened in going and asking, as people are a bit worried about going to the doctor, they could go to a pharmacist that perhaps they see because they get*

*their corn plasters and what have you they become a friend and then they can talk to them. (Participant 17 SP)*

One participant thought that community pharmacists would need to work harder than pharmacists within secondary care to develop their relationships with their patients, due to the community pharmacy being a business and the bias that comes with having to maintain a viable business.

*For those who work in the community I think they have to I believe build up a rapport with the patients that come to them in giving advice. Because I mean, it's a business so you have to be pleasant, you have to have the human skills and touches, good communication skills because you want those patients to build up that trust with you in return for further services. (Participant 15 SP)*

However, one participant already had a good relationship developed with their community pharmacist, and thought that was better than the pharmacist relationship they had developed in hospital.

*...I think it is more personal with a one to one pharmacist that you know so you know if you go to that chemist all the time and the pharmacist gets to know you then they give you more of a personal touch. Once you have built up the relationship with the pharmacist then they know you and they know you by name and you know it's more personal than a hospital. (Participant 4)*

#### *4.3.6.7.2 Importance of patient experience*

One participant discussed that if he used a pharmacist prescribing service, it would depend upon how that experience went as to whether he would continue to use such a service.

*...should I choose to go down that route when the system is up and running, I'm not going to know them. It is going to be down to the one on one experience that I have with that individual. It's going to take time for it to become efficient and a lot of it is going to be down to the delivery of the service, how they make sure that it's a pleasant one for the patients. (Participant 15 SP)*

Therefore it is apparent that first impressions of pharmacist prescribing services will be very important if the general public are going to be “won over” to using this new service.

#### 4.3.6.7.3 Importance of trust

Participants discussed how important it was to trust their prescriber. You need to trust their professionalism, their knowledge and you need to put your faith in them that they are going to do the best for the patient and not put them at any risk of harm. Participants talked quite generally about trusting people that are providing you with healthcare.

*You take a lot of trust when you go into hospitals it is like flying, when you go on a plane you don't see the pilots driving license so you trust that the people that you are dealing with are you know the professionals that they are. (Participant 9)*

*Yes I do tend to have great trust and faith and maybe I'm naive but I always assume that if people are doing something they'll be up to it and motivated and we're on the same side until I have some evidence contrary. ...I would hope that they knew what they were doing, if they didn't they shouldn't be doing it should they? You have to be trusting (Participant 10)*

Some participants were more specific about how they trust their pharmacists. These participants obviously have had a good history of dealing with pharmacists in the past and have been able to develop a relationship with them so that they are now in a position where they trust their judgement.

*Well I get on very well with x (community pharmacist) as long as he's been trained in whatever it is I'd accept his judgement (Participant 13 SP)*

*...it is a profession that I have no trouble in trusting. If a pharmacist tells me something I believe them. (Participant 5)*

However, a couple of participants were more uncertain of whether they could trust a pharmacist as a prescriber.

*I mean it's a vocation it's a job of work isn't it? But we've got to hope that they don't make mistakes. You have to put a lot of trust and faith in them and if they're going to have more responsibility. (Participant 3)*

*Because I thought I'd just injured myself with a grandchild, you see pulling her back from the recreation grounds, you see this apparently comes on quite suddenly but it took 3 visits to my doctor before it was diagnosed (not a back injury) because I convinced her that I'd done it myself. Would you talk to the pharmacist like that? I don't know. (Participant 3)*

### **Section 3:**

#### **4.3.7 Discourse regarding nurses as independent prescribers**

Figure 8: Summary of discourse applicable to nurses only. (Section 3)  
Emerging Themes

### **Prior experience of HCP's**

- Comparison to pharmacists
- Comparison to doctors

### **How patients feel about nurses**

- Nurse positivism
- Sympathy for nurses
- Development of the nurse role
- Benefit: job satisfaction
- Nurse negativity
- Subordinate role of the nurse
- Lack of understanding of nurses
- Barrier: public perception
- Negativity about drug knowledge

<b>Barriers</b>	<b>Facilitators</b>	<b>Support for IP</b>
<ul style="list-style-type: none"> <li>• Negative about nurse IP</li> </ul>	<ul style="list-style-type: none"> <li>• History of relationship</li> </ul>	<ul style="list-style-type: none"> <li>• Nurses already prescribe</li> </ul>

#### 4.3.7.1 Prior experience of health care professionals

##### 4.3.7.1.1 *Comparison to pharmacists*

When comparing nurses and pharmacists there were a range of positive and negative comparisons, but they seemed to mostly favour the nurses. They tended to be more negative about pharmacists in terms of their qualifications, their status, them being viewed as being “non-NHS” and in terms of professional relationship. Participants really value nurses and have great warmth and affection when discussing their role and abilities. They view them as being very dedicated to their jobs and therefore participants felt that this would lead to a more easily established trusting relationship. Participants recognised that pharmacists have never traditionally had a “hands on” role with patients and perhaps have “distanced” themselves from patients by having the barrier of the counter between them. It was also noted that when you go into a community pharmacy you may never see the same pharmacist in there, which precipitates the difficulties in developing a relationship. Therefore it seems to be more difficult for the public to accept this major change in role for pharmacists rather than nurses.

*Well I suppose mine as well as other peoples perceptions, I guess is that the nurse sort of person is more likely to be more medically qualified to do whatever it is that they're been asked to do (Participant 10)*

*Well it sad really, it's difficult because you don't think a pharmacist who is someone just behind a counter, he is set aside - but I think nurses have got a little more status in my opinion.....*

*With the dedication to me whereas I think a pharmacist if they're in a job, it's just..... Well I think nurses are usually female and they have this dedication and feeling for everyone whereas a pharmacist it varies and it's usually men isn't it? Their not going to have any personal contact with us. (Participant 3)*

*I mean we know these nurses, we get to know them, but I mean pharmacists you don't know them do you? I mean it may not be the same one all the time in the shop. (Participant 1)*

One participant also made the assumption that the nurse would be able to get access to patient's medical notes more easily than a pharmacist, which may be due to community pharmacists being viewed as being non-NHS as they are mostly not based within GP practices or hospitals.

*...taking into consideration they will probably be able to get their information quicker than the pharmacist I don't know...*  
(Participant 7)

One participant did not see any differences between nurses and pharmacists in terms of their ability, training and knowledge as long as they were qualified appropriately.

*I don't think I have got really any, I don't think I have got any differences in my opinion between nurses and pharmacists because again they have been through the training they are qualified they are knowledgeable, so I don't think I have got any differences at all.* (Participant 5)

The area where pharmacists were deemed in a more positive manner was when participants discussed their drug knowledge. One participant felt that pharmacists would be able to specialise in several clinical areas due to their expert drug knowledge, whereas nurses ought to specialise in a single clinical area.

*I suppose where maybe a pharmacist could be qualified maybe in a couple (of clinical areas) although they would concentrate in maybe chemotherapy or whatever. I think with a nurse they would I believe they would have to be qualified for specialising in one area.*  
(Participant 15 SP)

*...maybe I have got a perception that pharmacists have got a better knowledge of drugs themselves than nurses might have, I don't know if that is the case or not but I guess that is a perception I hold.* (Participant 5)

#### 4.3.7.1.2 Comparison to doctors

Nurses were held in very high regard when compared to doctors. This was in terms of them having more time for patients and having better relationships with their patients.

*Yes-you always feel that they've got- perhaps it's wrong, but you can spend a bit more time with them, it's easier.* (Participant 6)  
*I very often see the nurse and she is more of a contact with me than the doctor is.* (Participant 4)

It was also recognised that in hospitals, experienced nurses tend to support and guide doctors- especially the junior doctors. Also participants reported how nurses now have more autonomy and are taking on a more extended role. The nurse was seen as being the “central” health care professional in a patient’s care who liaised with other health care professionals and saw the “overall picture” in a person’s care.

*I think now hopefully that now they are able to make decisions and do more for the patient, clinical as opposed to have to leave a lot of stuff to a doctor and I think it's quite frustrating when you get the changeover of the doctors and you've got these young doctors which is probably their first posting they're in Accident and Emergency or on the wards and it's the nurses that are carrying it, it's quite stressful for them at the time..... at least they are able to give advice not only to the doctors because they are they're in communication with one with the doctors one with the patient and the patient's relatives more that they will probably pick up and take on a lot more information than maybe and I'm not discrediting doctors, than maybe a doctor would do and will be able to give the appropriate advice or pass on the appropriate information to a doctor so that that patient gets the right treatment. (Participant 15 SP)*

#### 4.3.7.2 How patients feel about nurses

The way that participants regarded nurses could be split into positive and negative issues that impact upon people's opinions of nurses in an independent prescribing role. The following themes regarded the positive views about nurses.

##### 4.3.7.2.1 Nurse positivism

When participants were asked their opinion of nurses, they overwhelmingly praised nurses, using terms such as “wonderful” “excellent” “very good” “first class” “kind” “great” and “marvellous”. They were regarded with the greatest of respect and participants thought that nurses were committed and dedicated to their jobs and worked very hard under difficult conditions.

*...I think they work extremely hard.... I wouldn't basically question their commitment or their ability or their caring really, the experience I have had has been first class. (Participant 18 SP)*

*...some nurses are just wonderful and have worked for years in that area and know everything inside and out. (Participant 15 SP)*

*...I mean we have the best nurses in the world (Participant 14 SP)*

It was also recognised that nurses could develop quite intimate relations with their patients as well, depending upon what condition the patient had:

*...nothing is too much trouble and I have suffered with things like constipation and the sister I had dealt with it within sort of 20 minutes, she came and held my hand. (Participant 7)*



One participant mentioned that the nurses he came across in hospital hadn't fallen into the "stereotypical" view held (and promoted by the media) of nurses, but instead were incredibly professional:

*Well, my personal experience has been about 99% fantastically good much of the time as a patient one is pretty vulnerable and most of the time I wasn't called 'dear' or 'love' or 'ducks' or anything like that they mostly got my name right and they were all very nice, very professional and so that's a huge generalisation and in the day-therapy unit which I've said to themselves in a variety of ways they were extraordinarily I don't know how they remained so cheerful with people who were extremely unwell... (Participant 10)*

Participants also thought they were very professional and thought that they took workload from the doctors, had more time for you than doctors and were more efficient than doctors.

*Excellent it's a wonderful service you never have to wait more than 5 -I don't think I have ever had to wait more than 5 minutes for anything for any appointment they seem to get you in and get you out. If you go to a doctors if you want to see the nurse it's far easier to get in they do seem to run their clinics better possibly 'cause they're not dealing with dramatic illnesses. ... Now the last few times I've been in hospital the nurses are always busy but they have always got time for you.... I can only praise the nursing that I've had here. (Participant 6)*  
*Well they do a damn good job taking a lot of workload off the doctors don't they? (Participant 11 SP)*

So all of this positive opinion facilitates them being accepted as independent prescribers.

#### *4.3.7.2.2 Sympathy for nurses*

Alongside this positivism held for nurses, participants also "felt sorry" for nurses as they believed that they worked extremely hard, under difficult conditions for not very much money.

*I mean I am sure they need more nurses on a ward because their work never seems to stop (Participant 7)*  
*...a nurse's job is one I have great sympathy for and I think they are poorly paid for what they do now. (Participant 5)*

*They get a very poor wage for what they do. They work for 10 hrs a day for what £200-£300 a week. (Participant 14)*

#### *4.3.7.2.3 Development of the nurse role*

One participant recognised that the role of the nurse has already been changing over the past few years, and they are developing a more clinical role. This recognition again means that it will be more acceptable for the public to accept them in a prescribing and diagnosing role.

*It's not bed baths anymore is it?! -It's changed so much whereas it used to be a lot of hands on building up that rapport with the patients and getting to know your patients and basically assisting obviously you've got your clinical skills you need to carry out and doing your checks and observations and changing the dressings and administering drugs and what have you, things are changing. (Participant 15 SP)*

#### *4.3.7.2.4 Benefit: Job Satisfaction*

One participant recognised that nurse independent prescribers may acquire greater job satisfaction from undertaking this role as well. Which alongside the participant's positivism for nurses and their sympathy for them, will provide public support for the nurse as an independent prescriber.

*...it will be interesting if, if it makes their job interesting and they get more job satisfaction out of it, out of doing it. (Participant 9)*

Although the participants held these positive views about nurses, they also held the following negative views about nurses, which could be detrimental towards their support in an independent prescriber role. There was however, a greater strength of feeling with regards to positive comments about nurses than the negative comments.

#### *4.3.7.2.5 Nurse Negativity*

There was not a great amount of discussion about nurses in a negative manner. Comments that were made were based upon the knowledge of nurses and hence how worthwhile their role is.

*You cannot say that nurses are going to get 5 years in a university. They wouldn't be nurses after that would they; they'd be doing something a bit more worth while. (Participant 13 SP)*

*...they can be bossy sometimes, but it comes with the job.*  
(Participant 9)

#### 4.3.7.2.6 Subordinate role of nurse

Participants commented upon the current job role of the nurse. They referred to the nurse as being in a supportive role to the doctor, removing more menial tasks away from them. Participants thought that nurses did not have a lot of responsibility and were always responsible to someone else. If nurses are perceived as being subordinate it will negatively affect the public's opinions of their ability to be autonomous independent prescribers.

*(Asked what the role of the nurse was) Dogsbody.* (Participant 17 SP)

*...it's minor medical care that they give they don't give any diagnostic care that wouldn't be their job, but they will what the doctors prescribe for you or recommended for you they will fulfil that criteria.* (Participant 6)

*...of course they have no responsibility other than give drugs that are there.* (Participant 7)

*...whatever the doctor provides for the nurses to do they do. ... But nurses are responsible to someone they've all got a boss somewhere haven't they?* (Participant 13 SP)

#### 4.3.7.2.7 Barrier- Public perception

One participant thought that the acceptance of nurses as independent prescribers would depend upon how the public perceived their status and qualifications.

*I'm just thinking it all comes down to status I think the public may perceive you are just a nurse and you're not qualified to do this.*  
(Participant 15 SP)

#### 4.3.7.2.8 Negativity about drug knowledge

One participant raised concerns about whether nurses had sufficient drug knowledge to prescribe:

*I'm not discrediting their training, they go through a lot but I just wonder how in-depth they go into the drugs make-up itself and their knowledge of the drugs and it's difficult to answer that question because you don't know what kind of training they would have received. Now fair enough, they may have a lot of knowledge about diabetes or whatever the condition is but with regards of the drug itself and what is the appropriate drug to give, I don't know*

*how in-depth at present they go into that or if they are going to be given a wider remit then what training and support they will be given to be qualified to prescribe? (Participant 15 SP)*

#### 4.3.7.3 Barriers

##### 4.3.7.3.1 Negative about nurse independent prescribing

A couple of participants did not want to use nurse independent prescribing as they felt it represented too much of a change, and that they would still want to use their doctor regardless of how minor the complaint. Some participants also felt that the introduction of nurse independent prescribing was not absolutely necessary either.

*...I don't say necessary but I think it would be an advantage to a practice. (Participant 2)*

*No I don't think I'd use it if I had the choice of carrying on, I would continue (using the doctor). (Participant 3)*

#### 4.3.7.4 Facilitators

##### 4.3.7.4.1 History of relationship

Some participants stated that they would trust nurses in a prescribing role because they have developed a relationship over time and therefore they know them. Participants often reported that they had the better relationship with the nurse when compared with doctors and pharmacists.

*...the district nurses come in to clean the line and if I am in the middle of a course of chemotherapy they come and they take the blood samples ahead of the chemo, so again we build up a relationship with them, it tends to be the same 3 or 4 nurses that have been coming. (Participant 9)*

*No I wouldn't (have concerns about nurse IP) because I think they have the knowledge of the patients, or they can have. (Participant 2)*

*I've always got on well with the nurses because having your own children, my children would be born at home so you had quite a lot of contact in those days with your nurse..... I think the nurses are in contact with the patient, whatever they need a prescription for. I think they would be involved with whoever it was. (Participant 3)*

#### 4.3.7.5 Support for Independent Prescribing by nurses

##### 4.3.7.5.1 Nurses already prescribe

There was recognition amongst some participants that nurses were already prescribing in certain situations. They went on to describe situations where nurses were running clinics but needing to obtain a doctor's signature on the prescription they had written. Participants were therefore viewing the process as prescribing even though it was the doctor that was authorising and taking responsibility for the prescription.

*Yes she dispenses it, she prescribes it and gets the doctor to sign the prescription, but she decides what level which should be the various types of medication to take. (Participant 5)*

*...in fact 2 years ago I had a chest infection, I went round and the surgery was just closing and there was no doctor there and the nurse that deals with asthma happened to be there and she examined me and said yes you have got an infection and she phoned the doctor at the other surgery, made out the prescription and I was allowed to go down to the chemist and get it and the doctor okayed it over the phone (Participant 7)*

However, the same participant also recognised that in some circumstances, nurses do not have the legal right to prescribe.

*...in fact last year she (the nurse) recommended a change of drugs and she went and saw the doctor and came back and changed the drug. I think if she'd have had the power at the time, she could have done it but she didn't have the power. (Participant 7)*

## **Section 4:**

**4.3.8 Discourse from participants who had experienced pharmacist supplementary prescribing.**

Figure 9: Summary of discourse applicable to patients that had consulted a pharmacist supplementary prescriber. (Section 4)  
Emerging Themes

### **Past experience of SP**

- SP positivism
- SP positively affects opinion on IP
- Importance of trust

### **Change, recognition and acceptance**

- Surprise
- Recognition that SP is a specialist
- Lack of impact of SP
- SP does not affect opinion of IP

### **Psychological effect on patient's health**

- No concerns that not seeing a doctor
- Positive sign that you do not need to see a doctor

### **Benefits of SP**

- Concordance
- Increased access to healthcare and decreased pressure on doctors

### **Extended role of the pharmacist**

- Being monitored
- Benefit of consistency
- Expert knowledge
- Letting the SP down
- Professionalism expected
- SP service is more in depth
- Supportive role of SP

### **Structure**

- Concern over consistency of quality
- Importance of training
- Minor ailments only

### **Autonomy**

- Close supervision by doctor
- Doctor supervision unnecessary
- Doctor for initial diagnosis

### **Blurring roles of nurse/pharmacist/doctor**

- Comparable to nurse clinic

It should be noted that out of the 18 study participants, n=8 had seen a pharmacist supplementary prescriber. This section describes their experience of this process and how it has affected their opinion upon the role of the pharmacist and the extension of their role to become independent prescribers. (N.B. the initials SP are not added after the participant number for quotes in this section as all the quotes are from participants who had experienced supplementary prescribing).

#### 4.3.8.1 Past experience of supplementary prescribing

##### 4.3.8.1.1 *Supplementary prescribing positivism*

Those participants that had seen a pharmacist supplementary prescriber did not have any negative comments to say about them. Instead, they remarked how helpful the pharmacist had been, how good the service had been and that they had received good advice. These participants were quite nonchalant about being seen by a non-medical prescriber and did not consider that their safety was being put at risk at all.

*...as far as I am concerned she did a good job and I was quite happy with it. ...I am quite happy with X (supplementary prescribing pharmacist) and I don't see any disadvantage and a tablet is a tablet and she is qualified to prescribe it for me up or down you know, I don't suppose she is going to kill us. (Participant 11)*

*Well with x (supplementary prescribing pharmacist) we get on together like a team. ...Well she's done a hell a lot more than I would have ever thought possible. ...Yes she's given me a lot of advice and help. (Participant 14)*

##### 4.3.8.1.2 *Supplementary prescribing positively affects opinion on independent prescribing.*

When participants were asked whether their experience had affected their opinion upon pharmacists becoming independent prescribers, they commented that they did feel more positive about accepting pharmacists as independent prescribers. Their experiences had been positive and had therefore given them confidence about pharmacists being prescribers.

*Not really swayed me its probably could have slightly reinforced it yeah, yeah definitely. (Participant 18)*

*He's been very good. I don't really have a lot to do with other pharmacists. Yes I think it opens your eyes a bit to other pharmacists. (Participant 16)*



#### 4.3.8.1.3 Importance of trust

Some participants talked about how they trusted the pharmacist supplementary prescriber they saw, and that if they are performing that role, they expected that they had the appropriate qualifications and were efficient at doing that job.

*I would assume that was her job and she knew what she was doing one has got to trust the medical people cause you don't know do you? (Participant 13)*

*It is quite alright I take her word for it, I mean I presume she knows what she is doing otherwise she wouldn't be doing it, so yes I just take what she told me to take and she checks it, and I go back and see her and she says that your blood pressure is not down so she said I am going to double up these tablets, certain tablet. And she said it might make you - things about it may make you feel dizzy and all this sort of thing and yeah I am in their hands really. ... they know, I hope they know what they are doing so you have got to go along with it as far as I am concerned. (Participant 11)*

#### 4.3.8.2 Change, Recognition and Acceptance

##### 4.3.8.2.1 Surprise

One participant expressed that she was surprised that she was going to see a pharmacist prescriber rather than a doctor, but as she had not had much experience of hospitals, she thought it must be what is done in hospital. She therefore accepted it as it was the service being offered to her.

*It was a bit strange at first; I thought it was a natural thing for them to do. ... I've never been in hospital before so I don't know what the procedures are you see, someone that's always in there having an operations they get used to knowing what's what but I didn't know the first thing about it. ... No I thought it was a bit strange but thought that was the way they work up there. (Participant 16)*

##### 4.3.8.2.2 Recognition that SP is a specialist

One participant used an analogy of a GP and a consultant to compare a community pharmacist and a supplementary prescribing pharmacist. Therefore pharmacists with prescribing rights could be seen as being superior to a non-prescribing pharmacist by the public.

*...it's like a GP they deal with anything from in-growing toe nails to strokes, heart problems, they are a doctor of all and that's why.*

*The pharmacist in the village is the same and x (the supplementary prescribing pharmacist) is a specialist pharmacist and that makes a lot of difference. (Participant 17)*

#### *4.3.8.2.3 Lack of impact of SP*

Some participants felt that the consultation with the pharmacist SP was quite unremarkable, nothing out of the ordinary. Therefore it was considered to be an effective and acceptable consultation that was not inferior to that which they would expect from a nurse or a doctor.

*Now when I went to see x (supplementary prescriber) it was a similar experience really, I just went and saw him and he basically asked me the same sort of questions as to my condition and taking the tablets. I cannot remember whether there was any subtle difference in the fact that he suddenly produced the bag of drugs from his drawer or whether I... Or whether we had to go, I think they were ready actually, I think he had them there so it was a very sort of quick and uneventful experience really. (Participant 18)*  
*No he doesn't do anything he just sits and listens and I tell him how I feel and he gives me the pills and I come away. (Participant 16)*

#### *4.3.8.2.4 Supplementary prescribing does not affect opinion of independent prescribing*

A couple of participants felt that their experience of seeing a pharmacist supplementary prescriber did not affect their opinion upon pharmacists becoming independent prescribers. One participant felt that this was just the way that the NHS was having to go anyway and the other had a lot of confidence and faith in pharmacists beforehand anyway, so was fully supportive of this role extension.

*Personally no. I just feel that this is just the way I think a move in the NHS into the 21st century. (Participant 15)*  
*No hasn't affected my opinion on anything. (Participant 14)*

#### 4.3.8.3 Blurring of roles of nurse/pharmacist/doctor

##### 4.3.8.3.1 Comparable to nurse clinic

A couple of participants commented that as they had experienced being prescribed for by a nurse prescriber, they had no concerns about seeing a pharmacist supplementary prescriber. So positive experience of other non-medical prescribers has developed confidence in patients to see other types of professionals as non-medical prescribers.

*...I would be automatically in favour of this from the point of view of what I know of nurse practitioners....if I am honest there is not a, I didn't notice a lot of difference between the visit when I saw x (supplementary prescriber) and when I saw a nurse. (Participant 18)*

*Umm...the nurse you know the one I told you that was she was very professional yes that was...yes similar to the pharmacist (Participant 12)*

#### 4.3.8.4 Psychological effect on patients' health

##### 4.3.8.4.1 No concerns that not seeing a doctor

Participants did not seem to have any concerns that they were seeing a pharmacist supplementary prescriber rather than a doctor. This links into the importance of trust. Participants had no concerns because they trusted the "organisation" that they were seeing the pharmacist SP within (i.e. G.P. surgery or hospital). Therefore this opinion may vary if the clinic was held in a community pharmacy.

*I was quite happy with that. I took the view that he wouldn't be there if he didn't know what he was doing and they weren't happy with him, so I was quite happy with that. (Participant 17)*

##### 4.3.8.4.2 Positive sign that you do not need to see a doctor

Within the clinical area of oncology, one participant made the very interesting comment that he felt that because he was being dealt with by the pharmacist rather than the consultant, his disease must be less severe, so he took this as being a positive message which made him feel better. Therefore the pharmacist is still being seen as inferior to the doctor, but the participant has correctly recognised that the whole point of this development is to free doctors' time to see the more complicated cases.

*No, no in fact in many cases it, psychologically to me it was better because I felt as I was going along, you know you are in a sort a*

*state of wonderment after say you know what is the next stage, well the fact that you were only seeing a pharmacist and that almost gave you a relax that there is nothing going wrong really. I say I had to have a blood test obviously before so the blood test results were in, so the fact that you were seeing a pharmacist you think oh crumbs, Doctor x will have looked at the results maybe the pharmacy and there is no problems with the blood tests so really psychologically I felt that it was better to see somebody else and say well if you are seeing the oncologist is there a problem sort of thing. ...Psychologically I thought, that is me, I might be peculiar but I just felt that it was more relaxing to know that is who you were seeing really. (Participant 18)*

#### 4.3.8.5 Extended role of the pharmacist

Participants discussed the SP service that they had experienced and how it affected them.

##### 4.3.8.5.1 Being monitored

One participant expressed that he was aware that the pharmacist supplementary prescriber was monitoring his progress, and was appreciative of this service.

*...if you slip then you know X is watching me, knowing that I have got to see her and that not only are you trying to prove to yourself or press yourself but you need to, you've got someone checking on you. (Participant 15)*

##### 4.3.8.5.2 Benefit of consistency

One participant felt that a benefit of pharmacist supplementary prescribing was that they were seeing one person throughout the course of their treatment, so therefore a professional relationship develops leading to increased trust. This consistency of seeing the same prescriber is liked by patients; it is felt that the prescriber knows the patient and their nuances. It might be that this consistency is more important for patients with more serious diseases such as cancer, who have more concerns about their wellbeing.

*...when I first went down to the oncology unit I was told that I would have a nurse, dedicated nurse allocated to me who would follow my progress right through and you know I suppose to get to know me a bit over that time, it didn't happen and I saw a different one every time. So if you are seeing a pharmacist, if you are giving, if that would guarantee consistency as well, apart from*

*holidays and so on, then I think that would be quite a good thing actually because I think the relationship over what 18 weeks, what about 36 visits, would be useful and probably make you feel more relaxed about going and talking really. So I think the consistency would certainly help, I know you could get that if they dedicated a nurse but if it means that you are seeing a pharmacist you are likely to get more consistency then that will certainly be a benefit. ...I think that sort of relaxed me more and I think as I said if you were, if there was a consistency as well with the person that you were seeing over the period that would enhance that relaxation and the freedom to talk and chat. (Participant 18)*

#### *4.3.8.5.3 Expert Knowledge*

One participant felt that her pharmacist supplementary prescriber (in oncology) was an expert in drugs in that clinical area, and felt that they actually knew more about the drugs than the doctor. So again this supports the suggestion that the public might view pharmacist supplementary prescribers as being superior to non-pharmacist prescribers.

*...Yes we went to see Dr x and she asked him (the pharmacist supplementary prescriber) whether I could have chemotherapy because I'd had a heart problem. ...I think seeing a pharmacist they know more about the drugs that they're giving you than probably a doctor does. I don't know because I haven't had the opportunity to question Dr x about it, so how that compares I don't know. ...I would say from my personal thoughts that the pharmacist would probably know more about drugs than the doctor even with cancer and that there are different forms of cancer so different drugs are needed and I think probably pharmacists would probably be the one that would know more about it than the doctor. (Participant 17)*

#### *4.3.8.5.4 Letting the SP down*

One participant felt that as their pharmacist SP had set them targets of weight to loose, he did not want to let them down. The participant was grateful for the support and help that the pharmacist SP was offering him, which ties in with the benefits that were felt from participants of seeing the same pharmacist throughout the treatment.

*...you know also it's amazing how you do feel if things haven't gone in the right direction and it was really disappointing and embarrassing for me anyway, in knowing that here I am getting the support and I kind of felt and it kind of gives you that boost to do better next time. (Participant 15)*

#### 4.3.8.5.5 Professionalism is expected

One participant clearly stated that he felt that if a pharmacist was in a prescribing role they would be expected by patients to be professional, and have the patients' best interests at the forefront of their mind.

*...going back to what I said earlier they're professionals she's (the pharmacist SP) a professional and they will be acting appropriately in the interest of myself. (Participant 15)*

#### 4.3.8.5.6 SP service is more in depth

Some participants felt that the SP service they had received was very informative and more in depth than they had received before.

*...but they just doesn't take blood pressure they sometimes they take, weight check your weight and other things like that. (Participant 12)*

*...she's talked about the drug itself, what the indicators are for it, what it would do for me and what the side-effects are, she's been quite informative. (Participant 15)*

#### 4.3.8.5.7 Supportive role of supplementary prescriber

One participant expressed that he valued having the pharmacist supplementary prescriber there in a supportive role, helping him with his weight loss.

*...as I said it is more dietary, so it is a weight issue. Yes basically giving appropriate advice and support for me really in this issue. ...as much as I have an idea as to what I need to do, it's been advantageous to me in knowing that there is somebody there who is supporting me because some people are able to act independently some need a little bit of kick up the backside for their support, and I think it's useful for me in having that there because you're not just left... (Participant 15)*

#### 4.3.8.6 Structure

##### 4.3.8.6.1 *Concern over consistency of quality*

One participant felt that although he had a good experience with his pharmacist SP, he was not sure whether it would be the same with other pharmacist SPs. Therefore there is still some concern present as to the abilities of some pharmacists to be prescribers. They are not totally convinced that the quality will be maintained across the board.

*Whether everybody is going to be the same I don't know?*  
(Participant 11)

##### 4.3.8.6.2 *Importance of training*

The participants commented that as long as the appropriate controls were in place in terms of training and accreditation then they had no problems with pharmacists as independent prescribers. One participant does however emphasize that the training has to be an appropriate length in order to be of benefit.

*...providing that you can train people specifically with all the natural guidelines and controls then I think yes why not, why not obviously you don't need to do 7 years doctors training to diagnose a sore throat really, you just don't need it so I think in a lot of cases you are using sort of hammers to crack walnuts really, so yes I have a natural leaning towards that, always precursored by professional training and control and when that is done I think yes fine..... I don't have any sort of problems with anyone seeing anyone who is adequately trained and professionally qualified in that field quite frankly. (Participant 18)*

##### 4.3.8.6.3 *Minor ailments only*

One participant was clear that he felt he knew what he would see a pharmacist independent prescriber for and what he felt was more serious would need to be seen by a doctor.

*...if I know what's wrong with me and it's not very serious I don't think it matters. If I thought it was anything that was dangerous I would want to see a doctor. (Participant 13)*

#### 4.3.8.7 Autonomy

##### 4.3.8.7.1 Close supervision by doctor

A few participants felt that the service being provided by pharmacist supplementary prescribers would need to be closely supervised by doctors. This may infer that they also think that pharmacist independent prescribing needs close supervision as well.

*If I, if I see regularly x (pharmacist supplementary prescriber) instead of the doctor and then I am a little bit worried you know if because if there is a, I don't know about pharmacists that how much they know about... Yes other conditions, but I still want to see the doctor as well and I want to see the doctor that doctor had to check out everything is going, that everything is going ok then I will be more confident. (Participant 12)*

##### 4.3.8.7.2 Doctor supervision unnecessary

Participants did not however feel that doctor supervision was necessary during the supplementary prescribing process. Therefore they were happy for pharmacists to undertake the prescribing process but it is the diagnostic process which participants are not confident about.

*...she wasn't seeing the doctor she wasn't referring back, well as far as I know, and she was prescribing the medicine. (Participant 11)*

##### 4.3.8.7.3 Doctor for initial diagnosis

One participant was not happy for independent pharmacist prescribers to undertake diagnosis. He still wanted to see the doctor for that. This is because diagnosis is still viewed as being part of the doctors' realm. Prescribing by pharmacists is a large change for the public, but allowing pharmacists to diagnose as well may be too big a change for some patients to accept and be confident about.

*Well I think initially I would like to see a doctor you know for diagnosis and then I would be happy for X (pharmacist supplementary prescriber) to take the follow-up. (Participant 11)*



#### 4.3.8.8 Benefits of supplementary prescribing

##### 4.3.8.8.1 Concordance

Some participants commented that during the consultation with the pharmacist supplementary prescriber, they are able to ask the pharmacist SP any questions they have about their treatment and they make decisions together about how their treatment should change. The participants seemed very satisfied that they were involved in their own healthcare and that the consultation was concordant. One participant even thought the participation they managed to have in the consultation was better than what they would have if they had seen their doctor.

*If I want to know anything then I ask him, he tells me, we talk about -I asked him how my blood went from the check-up and he said that was fine (Participant 16)*

*Yes she has put no pressure on me what so ever, it's been my decision. ...Yes and I suppose in some ways, airing towards us thinking seriously about going down that route again (i.e. using medication to control BP) there has been no added pressure it's been a decision that's left up to me to make. (Participant 15)*

##### 4.3.8.8.2 Increase access and decrease pressure

Participants could see that the SP system was beneficial in terms of being more timely for patients, in terms of the pharmacist SP having more time available than doctors to discuss issues with patients and also in terms of freeing up time for the doctors.

Time saving for patients:

*Well it was much quicker you come in for an appointment and you go straight in sort of thing. (Participant 13)*

*So yes I was informed that I was seeing a pharmacist which I actually thought was quite a good idea really, because it relieved time on the oncologist, I thought it was more efficient really. Particularly in my case where it was fairly straight forward and I hadn't had any side effects or any problems with the medicines, I thought that the sooner I was in and out of these places the better really, so I thought it was an excellent idea. (Participant 18)*

The supplementary prescriber has more time for them:

*I can spend a little bit of extra time I can explain in more details what I have noticed from these medicines and what my condition is like, so I can talk to her in details other wise a doctor they have only got a small slot and they have a lot of patients waiting for*

*them so they cannot spare that much time, so they can give additional advice and listening that they can find other things they can find the route of that disease where does it start and then it is very helpful. (Participant 12)*

Saves the doctors' time:

*Well to save the doctors' time really, I mean I don't have to make an appointment with the doctor; she (the pharmacist SP) makes an appointment with me. It is like the nurse next Wednesday, next week; I mean that will probably just come through the post from the nurse, so you bypass the doctor so you are saving them time. ...I can see what it is all about, it is about saving the doctors time because they must have patients just walk in there just to prescribe a tablet, so X and what she is doing is saving the doctors time. (Participant 11)*

## **Section 5:**

### **4.3.9 Differences of opinion between participants who had experienced pharmacist supplementary prescribers and those who had not.**

#### **4.3.9.1 Summary of differences of opinion between participants who had experienced pharmacist supplementary prescribers and those who had not.**

Patients who had experienced supplementary prescribing by pharmacists:

- Had less intrinsic barriers than those who had not experienced supplementary prescribing (e.g. coveting traditional doctor model, negative pharmacist image, issue of change/acceptance)
- Had more concerns regarding the importance of monitoring (i.e. risk management)
- Were less positive about nurses as independent prescribers
- Were less vocal about benefits of extended prescribing in terms of increased access to healthcare and decreased pressure on doctors
- Were less vocal about the knowledge of nurses
- Were less vocal about nurses already being prescribers
- Did not discuss their past experience/relationships with nurses
- Raised no concerns about the location of independent prescribing

Opinions of these two groups of participants (those who had not consulted a pharmacist supplementary prescriber (SP) = participants 1-10, those who had = participants 11-18) have been compared in order to establish whether the experience of consulting a pharmacist in a prescribing role has any affect upon their opinions of nurses and pharmacists as independent prescribers.

#### **4.3.9.2 Pharmacists as prescribers**

##### ***4.3.9.2.1 Intrinsic Barriers***

Whilst the participants were discussing pharmacists becoming independent prescribers, those who had not experienced consulting pharmacists as supplementary prescribers more frequently expressed views that suggested they had more intrinsic barriers than those who had consulted a pharmacist supplementary prescriber. These opinions were more vocal in the areas of coveting the traditional doctor model, the issue of change/acceptance and a negative pharmacist image.

#### *4.3.9.2.2 Covets traditional doctor model (Refer to p201 for further detail)*

For instance when discussing the traditional doctor model of provision of healthcare, the participants who had not consulted a pharmacist SP were much more conservative about pharmacists extending their role, and did not like the idea of not seeing their doctor when they were unwell, they used phrases such as “*insist on your right to see a doctor*” (Participant 9) and “*I would expect him (the GP) to be my primary carer from that point of view*”. (Participant 8) Only two participants who had consulted a pharmacist supplementary prescriber discussed this “coveting” of the traditional doctor model, and one of those said that he imagined other people would be unhappy about not seeing a doctor when they are ill, but was happy with the concept himself.

#### *4.3.9.2.3 Issue of change/acceptance (Refer to p203 for further detail)*

When the participants discussed the impact of these changes upon healthcare, none of the participants who had consulted a pharmacist SP voiced any concerns upon this development being a big change for the public. Those who had not consulted a pharmacist SP had much to say about the development being a big change in culture which would take people a long time to become accustomed to. They lacked confidence in the proposed system and could not even visualize how it was going to work in practice. Therefore the participants that had seen a pharmacist supplementary prescriber had any concerns addressed by the consultations they had experienced.

#### *4.3.9.2.4 Negative Pharmacist Image (Refer to p212 for further detail)*

Those participants who had not consulted a pharmacist SP tended to be more vocal regarding their negative opinions of pharmacists. These views focused upon their training being inferior to that of doctors that they do not really know what pharmacists actually do, that dispensing is not regarded as a very demanding or difficult job and that pharmacists are not regarded as being a very caring profession.

Only one participant who had consulted a pharmacist SP made a negative comment about pharmacists, but this was directed at poor service he had received at a supermarket pharmacy when they dealt with an error they had made.

#### 4.3.9.3 Risk Management

##### *4.3.9.3.1 Importance of monitoring*

None of the participants who had not consulted a pharmacist SP brought up the issue of on-going patient monitoring. However, three participants who had consulted a pharmacist SP stated how important it was to ensure that the pharmacist prescriber was monitoring the effects of the treatment(s) they had prescribed.

#### 4.3.9.4 Nurses as prescribers

Overall, those participants who had not experienced pharmacists as prescribers made more positive comments than those who had experienced pharmacists as prescribers about nurses being independent prescribers.

##### *4.3.9.4.1 Perceived Benefits*

##### *4.3.9.4.2 Increased access and decreased pressure (Refer to p189 for further detail)*

Although all participants had the same opinions upon how the development of nurses as independent prescribers would increase accessibility to healthcare for patients and help doctors to save time to see the more complex cases, the participants who had not seen a pharmacist SP were much more vocal about this and more frequently brought up this subject.

#### 4.3.9.5 Support for Independent Prescribing

##### *4.3.9.5.1 Knowledge of nurses (Refer to p192 for further detail)*

Participants who had not seen a pharmacist prescriber made more positive comments about how knowledgeable nurses were compared to those participants who had consulted a pharmacist prescriber.

##### *4.3.9.5.2 Nurses already prescribe (Refer to p235 for further detail)*

Participants who had not seen a pharmacist prescriber made more comments about nurses already being in a role where they can prescribe or nearly do.

#### 4.3.9.6 Facilitators

##### *4.3.9.6.1 History of relationship (Refer to p223 for further detail)*

Participants who had not seen a pharmacist prescriber made more comments about the relationship that they had with nurses over the past. They discussed their previous relationship with them in a positive manner and that the relationship means that they really get to know their patients and hence this builds up trust. They used this relationship to illustrate their positivism for nurses as prescribers.

Participants who had seen a pharmacist prescriber did not discuss their past relationship with nurses at all.

#### 4.3.9.7 Barriers

##### *4.3.9.7.1 Location of nurse independent prescribing (Refer to p204 for further detail)*

Participants who had not consulted a pharmacist prescriber were also more conservative about the location of the nurse prescribing clinic, in that they did not want to see such a clinic set up anywhere but within a GP practice. No such comments were made from those who had consulted pharmacists as prescribers.

#### **4.3.10 Differences of opinion between participants who had hypertension and those who had gastro-intestinal cancers.**

Opinions of these two groups of participants (those who had hypertension = participants 1-5 and 11-15 (total n=10), those who had GI cancers = participants 6-10 and 16-18 (total n=8)) have been compared in order to establish whether their medical condition had any affect upon their opinions of nurses and pharmacists as independent prescribers.

Referring to the groups as a whole, the participants with hypertension seemed to be more vocal about their opinions than the group with GI cancers. This did not appear to be because the group with GI cancers were frailer physically than the group with hypertension. In all of the factors where the majority of opinions were expressed by a single group, it was always the group with hypertension that more frequently commented upon the issue being discussed.

##### **4.3.10.1 Pharmacists as prescribers**

The areas where participants with hypertension more frequently voiced opinion than the participants with GI cancers were as follows:

##### **4.3.10.2 Personal characteristics**

###### *4.3.10.2.1 Knowledge of pharmacists (Refer to p192 for further detail)*

The participants with hypertension appeared to be much more expressive and positive about the knowledge that pharmacists had and talked about them being experts in medicines, who are highly trained and provide appropriate advice. However, this was in the context of the pharmacist in their traditional role. Only one participant with GI cancer discussed pharmacists' knowledge in this manner.

##### **4.3.10.3 Intrinsic Barriers**

###### *4.3.10.3.1 Negative Pharmacist Image*

Participants with hypertension made negative comments more frequently that pharmacists do not compare to doctors and that the role they currently undertake of dispensing is quite a menial one. They also commented that pharmacists are not felt to be a very caring profession, especially when compared to nurses. Therefore although

the group appreciated the pharmacists' advice (as above) they did not value their dispensing role and did not value them in comparison to other healthcare professionals.

Only one participant with GI cancer discussed the negative "shopkeeper" image of pharmacists' in this manner.

#### 4.3.10.4 Nurses as prescribers

##### 4.3.10.4.1 Support for Independent prescribing

##### *4.3.10.4.2 Knowledge of nurses*

The participants with hypertension also made many more comments about the knowledge of nurses when compared to the group with GI cancer.

The participants with hypertension commented that they particularly valued the advice and guidance that nurses gave them and recognised that over the years since their qualification, they build up a lot of knowledge. Again these comments were made in the context of nurses working in their traditional role.

#### 4.3.10.5 Risk Management

##### *4.3.10.5.1 Close supervision by doctor*

The participants with hypertension made more comments about nurses being supervised by the doctors whilst prescribing and that they would be able to "pop into see them" if they had any problems. Only one participant with GI cancer made a comment about the doctor being in overall charge.



### **4.3.11 Influences of background experience upon participants opinions**

#### **4.3.11.1 Jobs/Relationships**

Some participants had a much closer affiliation with healthcare or had close relationships with pharmacists or nurses which may have affected their opinions that they expressed in the study. These circumstances are explained below.

Participant 1 was a nursing auxiliary at a community hospital before retirement and therefore was very positive about nurses being prescribers.

Participant 4 had been a counter assistant in a pharmacy for 9 years. Although she was cautious about pharmacist prescribing she was overall positive about it and was certainly positive about the pharmacists' traditional role.

Participant 5 had a brother-in-law who was a pharmacist and so had discussed his role in quite some depth and seemed to have quite a good knowledge about what pharmacists do. Although he was positive about pharmacists as prescribers he was also very positive about nurses prescribing as well, so it did not seem to bias his opinion that one profession was any superior to the other.

Participant 10 was a member of the local PCT's professional executive committee and a director of a local care of the elderly charity. So he was much more informed about healthcare issues and also was aware of how doctors work. This meant that he was very liberal in his views about non-medical professionals taking on roles that were traditionally performed by doctors (i.e. he was positive and supportive). However, he also had his misgivings specifically in terms of IT support for the developments.

Participant 12 (SP) had a friend who was a pharmacist. Therefore as he normally sought advice from this friend, he was very positive about pharmacists in their traditional role. He was not however very well informed about pharmacists and their abilities. However it may have had some positive bias upon his opinions of pharmacists as prescribers.

Participant 15 (SP) was a clinical team leader for an ambulance trust, but it was unknown whether he had a nursing or a paramedic background. He was therefore very well informed about healthcare and was very opinionated about healthcare developments. However he had a very balanced opinion and did not seem to be biased towards nurses or pharmacists. He also brought up many problems with the development as well as reflecting upon the positive attributes of nurses and pharmacists. He did however seem to have more experience of working with nurses.

Participant 18 (SP) had a friend who was a pharmacist and therefore had some insight to the level of training that pharmacists have and what they do. He also had a daughter who was a nurse. He was therefore also well informed about the level of training that they have and about what they do. He was therefore positive about both of these professionals in their traditional roles and about their training. Although these relationships informed his opinion, they did not seem to bias him in any way.

#### 4.3.11.2 Errors made by pharmacists and doctors

Some participants described experiences of having doctors and/or pharmacists making errors with their prescribing or dispensing of their prescriptions. Regarding pharmacist errors, although the experiences may have put them off going back to a pharmacy that made the error, it did not seem to substantially affect any participants' opinions of pharmacists.

With respect to doctors' errors, again even though one error in particular was quite major, it did not seem to negatively affect the participant's opinions of doctors which were still held in very high regard.

Participant 3 experienced a pharmacist's error where they received a prescription item which had the wrong patient name on it. This error meant that the participant stopped using that pharmacy. This experience may have informed her traditional views of pharmacists being dispensers and not being comfortable about pharmacists developing their roles as prescribers.

Participant 5 had experienced a serious doctor's prescribing error. The doctor had prescribed his young daughter an overdose of a medicine to treat her colic, which his

brother-in-law informed him could have been fatal. It is therefore possible that as the pharmacist caught this error, that he has more respect and trust in the pharmacy profession.

This participant had also experienced a pharmacist error, where his pharmacy dispensed him his wife's antihypertensive tablets with his name on them. He spotted the mistake as soon as he opened the bag at home. He said that the pharmacy were horrified about the error and dealt with it very well. It seems that it is unlikely that this has biased his opinion on pharmacists.

Participant 11 (SP) received the wrong quantity for a prescription he gave to a pharmacy, but this was a fairly minor error which did not seem to affect his opinions on pharmacists.

Participant 14 (SP) experienced a pharmacist error where they dispensed him the wrong drug, but the pharmacist discovered the error quickly and phoned him on his mobile telephone whilst he was walking home. This experience did not seem to upset him as it was dealt with very efficiently and therefore did not bias his opinion of pharmacists as he was very positive about pharmacists being prescribers.

Participant 15 (SP) had experienced a pharmacist's error where the (supermarket) pharmacy had dispensed the wrong form of a medication for his child. He was not very impressed with the way that the pharmacist had dealt with the error, and had written a letter of complaint about it. This experience has meant that he does not use the particular pharmacy any longer, and it does seem to have negatively affected his opinion of supermarket pharmacies.

Participant 17 (SP) also experienced a doctor error where the doctor had prescribed her the wrong medication, which the pharmacist noticed and sorted out. This did not seem to bias her opinions upon doctors or pharmacists in any way.

#### **4.3.12 Summary of main findings of qualitative data upon patients' views and opinions of pharmacists and nurses as independent prescribers**

- Participants shared common views upon the benefits of Independent Prescribing (IP) and necessary controls when providing such a service regardless of the type of professional.
- They also had common concerns about IP, which included doubting their ability to deal with more than minor conditions and their diagnostic skills. Concerns were based upon issues of change and acceptance where some participants coveted the traditional doctor model which resulted in them considering the IP service inferior.
- Nurse prescribing was more acceptable than pharmacist prescribing because nurses were considered to be trustworthy, caring and a devoted profession who are the central figure in an individuals' healthcare, with which relationships are established. It was also noted by participants that nurses already prescribed for some participants.
- Community pharmacists were perceived by some participants as being "non-NHS", not being a healthcare provider and as having a negative image. Practically, participants doubted the privacy of community pharmacies, whether they had the necessary space to provide a professional IP service and had clinical governance concerns. However, participants did acknowledge the expert drug knowledge that pharmacists have and their accessibility.
- Participants that had experienced pharmacist SP were positive about the experience and it enforced views that pharmacists would be capable as IPs. Patients felt empowered due to increased concordance compared with doctor consultations. They also viewed SP pharmacists as being specialists compared to community pharmacists.
- Participants that had not experienced SP tended to have more intrinsic barriers towards IP.

## CHAPTER 5: DISCUSSION

### 5.1 Methodological Issues

During this research several different methods of data collection were used. The appropriateness, shortcomings, possible biases and confounding variables are considered for each section of the research in this section.

5.1.1 (1) National Survey of pharmacist transcribing of discharge prescriptions (secondary care) (see section 4.1 p141 for results)

*5.1.1.1 Advantages and disadvantages of using questionnaire surveys and how these issues were addressed.*

The use of a national questionnaire survey for quantitative data collection was not only cost effective but also the possibility of sampling bias was reduced as the whole population was surveyed. However it is possible that non-responders may have had different opinions and perspectives from those who responded to the questionnaire, who may have been more motivated because of being more involved and interested in the subject matter. It is also possible that people who had extreme positive or negative views were more likely to have responded to the questionnaire. The extent that these outlying views have dominated the results is however minimized by the fact that a good response rate was achieved.

The main disadvantages of questionnaire surveys have been reported as follows:<sup>225</sup>

1. Generally low response rates and consequent biases
2. Unsuitability for respondents of poor literacy; for the visually handicapped, the very old or for children below the age of say, ten; often unsuitable for people with language difficulties
3. No opportunity to identify or correct misunderstandings or to probe, or to offer explanations or help;
4. No control over the order in which questions are answered, no check on incomplete responses, incomplete questionnaires or the passing on of questionnaires to others;

5. No opportunity to collect ratings or assessments based on observation.

To address point one, although the response rate is less than similar questionnaire surveys<sup>67,235</sup> it still represented the opinion and views of nearly 70% of the total population and hence this would have reduced the risk of extensive bias. Literature suggests that high survey response rates are desirable because they increase the precision of parameter estimates and reduce the risk of non-response bias.<sup>236</sup>

The slightly lower response rate when compared to other questionnaire surveys may be due to the fact that the questionnaire was sent out in the summer. The questionnaire was sent out in the summer because the researcher is employed to teach and undertake research at the University of Bath. When teaching has finished for the academic year, there is more opportunity to devote time to research during the summer months. It is doubtful whether sending the questionnaire out at this time of year would have introduced any element of bias as the data collection period was for 11 weeks and so staffing bias was not anticipated.

Point two is addressed by the fact that all of the people completing the questionnaire are healthcare professionals and as such, there would be no language difficulties, visual handicaps or literacy problems.

Point three was addressed in part by the covering letter for the questionnaire having the contact details of the researcher with the offer of help if there were any problems that respondents had whilst completing the questionnaire. Also the piloting process should have reduced the possibility that parts of the questionnaire would have been misunderstood. However, this method does rely upon the respondent identifying that they have misunderstood a question, and so does not address the problem in full. Attempts were made to minimize the problems outlined in point four because the covering letter clearly stated who the questionnaire should be completed by and by having a space for open comments on the back of the questionnaire. However, it is impossible to determine in which order questions were actually answered in the questionnaire. It was intended that the questionnaire would have been passed onto the most appropriate person to complete it, which was clearly described in the cover letter.

Point five was addressed somewhat by the researcher visiting two hospitals that undertook PDPTS before developing the questionnaire. Observing the PDPTS process at the two hospitals allowed more insight to the process and detail of training and computer programmes used to support the pharmacist prescribing role. Also the research questions do not rely on observed data to answer them.

Another flaw with questionnaire surveys is that you do not know whether the respondent does actually know the answers. There is a risk that the respondent might guess the answer to the question. In this questionnaire survey, a question where they might have guessed the answer in particular was question 15: “On average/usually how many whole time equivalent pharmacists at each grade perform this role on a regular basis” and also section E of the questionnaire which enquired about numbers of prescriptions written per day, hours notice needed and impact upon the weekend services etc. Therefore you would report such results with more consideration of how accurate they actually were.

Certain groups of healthcare professionals do tend to be targeted more often with questionnaire surveys and certainly for chief pharmacists (one of the target group of respondents) there may be some questionnaire fatigue, where they do not respond to the questionnaire due to the sheer number of questionnaires that they get regularly sent. The only way of combating this is to make use of evidence-based methods to enhance the response rate.<sup>229</sup>

A criticism of the methodology used in the development of this questionnaire was that reliability and validity of the questionnaire were not assessed. Reliability refers to the purity and consistency of a measure, to repeatability, to the probability of obtaining the same results again if the measure were to be duplicated.<sup>225</sup> A way to check on the reliability of the questionnaire is to ask the same question, with slightly different wording at different stages of the questionnaire. The percentage of respondents who answer the questions with the same answer gives you an idea of how reliable the questionnaire is.

Validity tells the researcher whether the question, item or score measures what it is supposed to measure.<sup>225</sup> In order to ascertain the validity of factual questions, external

checks are used, where a second, independent source of information is sought to check whether the answer given is actually correct.

A problem with all questionnaire surveys is that they only record the opinions and views of respondents at the particular time that the survey was completed. As long as this is understood and clearly stated in any reports written from the results then this is generally accepted to not be a problem.

This survey met its intended aim which was to provide baseline data upon the incidence of types of pharmacist prescribing within secondary care in 2001.

Difficulties obtaining an up to date list of clinical pharmacists resulted in some questionnaires being directed to Chief pharmacists and Principal pharmacists (rather than pharmacist clinical services managers) to pass onto the most appropriate person to complete. This may have affected the response rate and also the information in the response, and so may have added some bias to the results. A manager such as a chief pharmacist or a principal pharmacist would be in-directly involved with the service as opposed to a clinical pharmacist who would be **directly** involved with the day to day running of a transcription service. Another problem was identifying hospitals that had merged trusts. Some of these were not identified until questionnaires were returned, and so these hospitals were then removed from the results.

It would have been preferable to use a sampling method whereby the questionnaire was sent to every hospital in every trust as opposed to just one of them. This is because some hospitals had only recently merged trusts and therefore they may have had different pharmacist prescribing roles and transcription services in place from the other hospital(s) in the trust. An assumption was made that single trusts would have trust-wide policies in place for such services, however if trusts had recently merged, this would have been unlikely to be the case.

A question was included in the questionnaire entitled “What percentage of the total number of discharge prescriptions are written by pharmacists?” but this had to be removed upon analysis of the final questionnaire’s data as the question did not clarify whether the percentage was out of the total number of discharge prescriptions written in the trust/hospital or whether it was out of the total number written on the ward(s)



were PDPTS was active. It was unfortunate that this problem was not spotted until this late stage as the data would have been very useful.

There are several areas where it has become apparent that further questioning would have been useful;

- Is any other type of pharmacist assessment undertaken? Some hospitals commented that although they did not complete an assessment specifically for pharmacists' transcription abilities, they did complete a whole competence assessment regularly.
- Is the PDPTS regularly audited and if so, how?
- Opinions upon the impact of electronic prescribing on PDPTS
- Reasons for lack of further extension of PDPTS.

The last question would have provided critical information as to why the services provided were not being used extensively throughout hospital trusts. Instead, the researcher was only able to speculate as to what these reasons were. This represents an acknowledged weakness in the design of the questionnaire.

More extensive preliminary development work (such as semi-structured interviews with leading-edge practitioners and focus groups) would have lead to a more robust questionnaire being developed. This was acknowledged and the shortcomings in the design of this questionnaire were addressed in the subsequent questionnaire survey by more extensive development work being undertaken before piloting.

## 5.1.2 (2) Implementation, Risks and Concerns about supplementary prescribing: survey of primary and secondary care pharmacists

### *5.1.2.1 Advantages and disadvantages of using questionnaire surveys and attitude scales and how these issues were addressed.*

As per the discussion for the first quantitative questionnaire survey that was undertaken (section 5.1.1), bias caused by extreme views/outliers is minimized by the fact that a good response rate was achieved. The response rate that was achieved compares with similar questionnaire surveys.<sup>67, 235, 237</sup>

Addressing the main disadvantages of questionnaire surveys (section 5.1.1), for point one; the possibility of sampling bias was reduced as the whole population of England was surveyed.

As per the previous survey, point two was addressed by the fact that it was health care professionals responding to the survey and point three by the contact details of the researcher being included in the cover letter and the piloting process. The limitations of the methods used to address these points have been discussed in the previous section (5.1.1).

Point four was addressed via the cover letter as per section 5.1.1 and point five was not addressed for this survey. This was because supplementary prescribing had only recently been developed and was not being used extensively in England. This questionnaire was distributed only 2 months after the first prescription had been written by a pharmacist supplementary prescriber.<sup>212</sup> This made it difficult to arrange to observe SP being done in practice. This would have provided insight to the process and helped the questionnaire development process. This omission represents a criticism of the methodology used in the development of this questionnaire.

It is recognized as per section 5.1.1, that there is a limited “shelf-life” for questionnaire data as the data represents a snap-shot of views of respondents at the time that the questionnaires were completed. Hence it is important that the period of data collection is stated when reporting the data.

For sections A & B of the questionnaire, construct validity should have been used to assess validity, by considering whether the responses to individual statements are consistent with other similar statements in the questionnaire. The similar statements should be planned into the questionnaire during the development stages. This was not

however done. Two similar statements were explored during data analysis to assess construct validity but one question used was part of the attitude scale and was not suitable to compare with questions used in the other sections. Also, using only two questions to compare to each other only addresses one aspect of construct validity for this issue and do not prove anything with regard to the other statements that were included in the questionnaire. Extensive assessment of construct validity is not achievable when assessing such a narrow frame of questions. Therefore further questions should have been put into section B which correlated more closely with other questions in section B, in order to test construct validity more effectively. A criticism of the methodology used in the development of this questionnaire was that reliability of the questionnaire was not assessed. Assessment of reliability of questionnaires was discussed in the previous section (5.1.1).

Telephone follow-up of chief pharmacists was difficult as these people are extremely busy and therefore secretaries preferred to take a message rather than let the lead researcher speak with the chief pharmacist. This may have reduced the response rate. For PCTPs, it was noted that the list of named pharmacists in the spring 2003 guide for primary care trusts<sup>228</sup> was often inaccurate. On subsequent mailings, the named pharmacist was therefore removed and changed to “Primary care trust pharmacist” in order to improve the response rate.

Although it would have been preferable to use the same follow-up methodology for both surveys, due to the larger sample size of primary care trust pharmacists compared to secondary care pharmacists, telephone follow-up was not undertaken for the primary care pharmacists. Instead an extra mailing was sent because it would have taken more time than was available to complete the telephone follow up for such a large sample. As the same response rate was achieved for both questionnaire surveys, the slightly different follow-up methodology does not appear to have affected the response rate.

It would also have been preferable to have surveyed directors of nursing about nurse supplementary prescribing implementation rather than pharmacists. However it was felt that as the respondents have overall responsibility for prescribing and drug budget issues within their trusts, they would be aware of what nurse prescribing services were available.

#### *5.1.2.2 Attitude Scaling*

It has been stated that attitude scales are relatively overt measures which are not designed to yield subtle insights.<sup>225</sup> However the use of such a scale allows the study of how the reported attitudes relate to other variables in the data set. The attitude scale in this survey was used to relate attitude to demographic variables and service provision (i.e. supplementary prescribing services). This was not considered too subtle to relate to attitude via a scale. By using such attitude scales, generalisations cannot be made about the attitude of the group of respondents as a whole (as to whether their attitude overall is positive or negative about supplementary prescribing), instead more tentative comments can be made to suggest what their attitudes might be.

A Likert scale was used in the attitude statements section (C) for the respondents to place their opinion on the scale. This type of scale was used as they are easy to use and hence are the most common scale used for attitude scaling.

The most serious criticism of this type of scale is its lack of reproducibility: the same total scale score may be obtained in many different ways. This being so, it has been argued that such a score has little meaning or that two identical scores may have totally different meanings. Therefore the pattern of responses often become more interesting than the total score.<sup>225</sup>

As the scale offers no metric or interval measures & lacks a neutral point, it is not known where scores in the middle ranges change from mildly positive to mildly negative. Scores in the middle region could be due to lukewarm response, lack of knowledge or lack of attitude in the respondent (leading to many “uncertain” responses) or to the presence of both strongly positive and negative responses which would cancel each other out.

This study did not compare individuals’ scores on the scale for the above reasons.

The reliability of section C was tested via the internal consistency method- This assesses the extent to which similar items (attitude statements) gave consistent responses. Determination of Cronbach’s Alpha was used via this method to give the overall correlation between items within the scale. A reliability coefficient of 0.7 or above is recommended.<sup>226</sup> The attitude scale for secondary care did produce a statistically valid Cronbach’s alpha value for the overall scale, however, none of the Cronbach’s alpha values for the extracted factors demonstrated a high level of internal

consistency (as recognised in standard textbooks of what constitutes a reasonable level of consistency, reliability coefficient  $>0.7$ ) (<sup>226</sup>) (Table 16). This would suggest that some caution is needed when interpreting the meaning of the factors and their associations.

Unfortunately the scale for section C for primary care did not produce an overall high level of internal consistency (Cronbach's alpha value), and neither did the individual extracted factors (Table 16). This suggests that the scale is not measuring what it was intended to for primary care. Since an almost identical scale for secondary care did have an overall high level of internal consistency (Cronbach's alpha value), (and therefore was measuring what was intended reliably) it suggests that the scale items needed further development to make them more suitable for primary care. The poor Cronbach's alpha values for the extracted factors were apparent in terms of developing an overall meaning for the factor (Table 18). Some of the individual items did not "fit into" the group as well as other items.

Development of the attitude scale was not done according to recognised methodology. According to Oppenheim,<sup>225</sup> usually after the pilot work (e.g. using sentence completion technique), a large number of attitude statements (probably between 60-100) is assembled to form an item pool. These items are then analysed and submitted to a scaling procedure. The outcome is 1-2 dozen items which together have the properties of an attitude scale that can yield a numerical score for each respondent.

More important than the number of attitude statements used is the fact that they have been scaled i.e. they have been selected and put together from a much larger number of statements according to certain statistical scaling procedures.<sup>225</sup> In the attitude scale that was developed for this research, only 22 attitude statements were piloted, which was reduced to 17 statements in the final questionnaires. The poor internal consistency and lack of reliability of the primary care attitude scale was partly due to this flaw in the development process.

Also, an original assumption was made that PCT advisers were a homogenous group, and it is apparent that this is not the case, as they may have very different pharmacy backgrounds, have very different job roles and influence within their PCT. Primary care trusts have also only been in existence since April 2002. Previously they were known as Primary Care Groups. Therefore these PCTs represent an organisational structure whose development is very much evolving. Also, the respondents were not

all entitled pharmaceutical advisers, so may have had roles with very different focuses within the PCT. Different PCTs will also have different healthcare provision pressures upon them, which will be affected by whether they look after a rural or urban population. These issues may have been anticipated if a primary care focus group had been held. Also, if there is a large proportion of dispensing doctors within a PCT, this may have a negative effect upon the development of pharmacist supplementary prescribing due to there being a previous history of disagreement between the two professions upon the need for separation of prescribing and dispensing.

Representation of PCTs from a pharmaceutical adviser in the focus group and in the semi-structured interviews would have helped to improve the overall reliability of the scale for the primary care questionnaire. A representative from this sector was not initially used because at the time that the focus group was undertaken, it was only intended to survey secondary care. A late decision was made that it would also be useful to survey primary care. The decision to not include primary care until the late stage in development may have been due to researcher bias as the researcher was also employed as a secondary care pharmacist.

Upon reflection, it would have been preferable to have run another focus group with primary care participants in order to ensure that their opinions were considered in the development of the survey and attitude statements.

Although the scale does not have a high level of internal consistency in terms of the Cronbach's alpha value achieved, the results can be used to provide some insight into the views of primary care trust pharmacists upon the risks and issues surrounding supplementary prescribing in primary care, and to also highlight differences in those views between primary and secondary care.

If either of these scales were used for further research they would both need further development to ensure that it was reliable and valid.

It was noted that some respondents commented in the open comments section of the questionnaire that if the questions in section C were dealt separately for nurses and pharmacists, they would have answered the questions slightly differently.

There were also some comments made that in some of the questions in section C, the term "primary care" was used, which can be misunderstood as just meaning PCT pharmacists. –It is only recently that PCT pharmacists have been more often

recognised as being their own specialist sector, separate from community pharmacy. Therefore the term “primary care” should no longer be used as a general term to collectively describe PCT pharmacists and community pharmacists, without further definition.

Respondents also commented that they would like to be able to make open comments to explain their answers to each item in section C. Some respondents did this anyway, where they felt they needed to qualify their answer. This may suggest again that the scale is not measuring the respondents’ attitudes reliably if they feel it is necessary to further explain their answers.

Although further explanation of answers is useful, it is not usual for attitude scales to allow extra space for explanation of their response. Also, the longer a questionnaire survey is, the more negative impact it will have on the response rate.<sup>229</sup> However, the comments were taken note of, and are referred to in section 5.2.2.

### 5.1.3 (3) Patients' views and opinions of pharmacists and nurses as independent prescribers

#### *5.1.3.1 Sampling and sample size*

For the purposes of qualitative research, it is not necessary to select research participants via a random selection procedure. Purposive sampling is often used in qualitative research in order to ensure that the participants represent the views of a wide range of the population to be studied and that they target the group of interest. However it was considered that as some of the populations that met all of the inclusion criteria were rather large (e.g. group one- patients under the care of the GP for hypertension, total sample was >1000 patients) it was felt that a random selection would produce a group of participants that represented a wide range of backgrounds. Random sampling was not the most suitable sampling method for the groups of patients under the care of a pharmacist supplementary prescriber as the total number of patients they were looking after was small. Instead, a purposive method could have produced a more diverse sample. However, when the study was designed it was not known how many patients the pharmacist supplementary prescribers would be looking after and how well established their clinics would be by the time patient recruitment was being undertaken. It was therefore decided to use the same random method of selection for all sites so that there was a consistent approach to sampling. It is however recognised that the method of sampling that was used could have introduced some bias in the sample that was invited to participate.

In terms of qualitative research, the overall total number of participants (n=18) is considered entirely reasonable. Statistics cannot be used to calculate an ideal sample size in qualitative methodology and instead the issue has to be dealt with conceptually: How many cases, in what kind of sampling frame, would give us confidence in our analytic generalizations?<sup>238</sup> It also depends upon how rich and complex the within-case sampling is. With high complexity, a study with more than 15 cases or so can become unwieldy with too much data to scan visually and too many permutations to account for. But with qualitative research, the aim is never to generalise the results on a population basis but is to inform thinking.

As the number of cases (participants) increase to 20-30, the number of researchers may have to increase to analyse all the data and the data itself becomes thinner and



less rich. When using more than one researcher to undertake the data analysis regular communication needs to take place in order to ensure that changes and development of the topic guide used during interview is agreed by all members of the research team.

However, it should be borne in mind that at this stage, the question has to be asked whether a questionnaire survey would have been a better method to use.<sup>238</sup> It would appear that the number of participants was reasonable for the methodology utilised. However, the sample size may not have been suitable when the sample was analyzed in sub-groups (such as those who were under the care of a pharmacist supplementary prescriber) as the numbers did not allow discussion of the topics to be fully saturated, as discussed below.

#### *5.1.3.2 Why were patients of nurse supplementary prescribers not interviewed?*

Patients were not interviewed that had been under the care of nurse supplementary prescribers in primary and secondary care. It was felt that the main focus of this stage of the research was to investigate patients' opinions and views of pharmacists as prescribers in particular which is a much more radical development for patients as they were expected to have more experience of seeing nurses as autonomous practitioners and prescribers. Patients were asked about their opinions of nurses as prescribers and how pharmacists compare to them.

If time had permitted, the design of this stage of the research would have been more robust if this group of patients had also been interviewed. Had this data been collected, it would have allowed comparisons to take place between patients who had experienced nurses versus pharmacist supplementary prescribing and would have allowed more insight into what affect nurses undertaking a more extended prescribing role has on the public's opinions of nurses as independent prescribers.

#### *5.1.3.3 Limitations of the data collection regarding nurse prescribing*

Generally, it should be noted that because the initial discussions occurred with participants about pharmacist independent prescribers, participants were less verbose about nurses, as they often referred back to what they had already said about pharmacists. In hindsight, the interview schedule could have been re-designed in order for participants to consider both nurses and pharmacists at the same time when answering the questions rather than asking the same group of questions about

pharmacists and then nurses. This may have improved the quality and richness of the data collected regarding nurses. More care therefore has to be taken when interpreting the nurse data and when making assumptions and generalisations about it.

#### *5.1.3.4 Limitations of the interviews with participants who had experienced supplementary prescribing*

Only eight participants had experienced supplementary prescribing by pharmacists. Some participants in this group were not very vocal about their experiences and hence the data retrieved is not a very rich or detailed portrayal of how their experiences have informed their opinions upon pharmacists as independent prescribers. Sufficient numbers of patients should have been interviewed until the data had been saturated. This represents a flaw in the data presented.

It would have been preferable to have interviewed further participants as the data was poor. However, recruitment at the centre where the participants had seen a pharmacist SP regarding their hypertension was difficult as it was a small population in total, and recruitment was poor.

For the participants who had consulted a pharmacist SP in oncology, the pharmacist SP had only recently started prescribing and was very specifically prescribing the oral chemotherapy agent capecitabine as an adjuvant for treatment of advanced colon cancer following surgery. This meant that he had only seen 12 patients in his clinic, and after the original patient recruitment pack had been sent out to his patients twice, only four patients expressed an interest in participation.

Also, due to restrictions upon the time available to do these interviews, it was untenable to try to find and recruit another site that had a qualified pharmacist supplementary prescriber working in such a narrow therapeutic area.

The researcher had not undertaken qualitative interviews before, but hoped that the training course that was attended, the pilot interviews and the researcher's professional experience would help these run smoothly. It is of no doubt that with experience, the researcher's interview technique would have improved over time. However, the researcher did find that some of the interviews undertaken in the third group of patients interviewed (those under the care of the pharmacist SP for hypertension) were the most challenging, as some of the patients were not very articulate, perhaps due to the deprived area of Bristol that the GP surgery was based.

## **5.2 Consideration of research questions**

### **5.2.1 (1) National Survey of pharmacist transcribing of discharge prescriptions (secondary care)**

#### *5.2.1.1 Prescribing activities*

The majority of departments had undertaken some form of pharmacist prescribing, by 2001 with the most common type of pharmacist prescribing being that of transcribing discharge prescriptions. Those hospitals that offered a PDPTS also offered a wider range of other pharmacist prescribing activities than those hospitals not offering such a service. Also, teaching hospitals, which employ more pharmacists than District General Hospitals' (DGH) were able to offer PDPTS more frequently. It could be suggested that staffing was a limiting issue in the provision of pharmacist prescribing activities.

#### *5.2.1.2 Prescribing systems*

The ward model of pharmacist transcribing was the most popular model in practice. It has been suggested that the most ideal method for pharmacist involvement in the discharge process is for the ward pharmacist to write discharge prescriptions whilst on the ward round, when medicine management issues can be discussed with the whole team as a collaborative process.<sup>197-198</sup> The pharmacist could write the discharge prescriptions as the ward round is continuing, meaning that as soon as the discharge decision is made, the prescription can be written, and passed onto ward technicians to process.

The majority of pharmacists that were transcribing discharge prescriptions are writing less than 5 prescriptions per day. As over half of the hospitals who offered such a service had less than 5 pharmacists who transcribe prescriptions, it can be assumed that the majority of hospitals were not having a large impact on the overall number of discharge prescriptions being written in the hospital. This agrees with the findings of Sexton's survey of 1999, which found that pharmacists were involved in writing discharge prescriptions in about a third of hospitals, but their impact was considered to be negligible.<sup>67</sup>

Reasoning for the limited impact of the services was not investigated by the questionnaire survey. One could speculate that the reasoning could be due to poor support from the medical profession, poor IT support, insufficient staffing resources and perhaps that the pharmacists could not be or were not on the wards when the prescriptions needed to be written.

The transcription services were operating during normal working hours Monday to Friday by the majority of departments. In light of the fact that Slee and Farrar<sup>239</sup> have shown that on weekdays 50% of inpatient and 18% of take home prescriptions were written outside the traditional 9-5pm working day, if a transcription service is going to have a significant impact, it needs to be operated over extended hours. The optimum benefit from this service provision may actually be from 5pm until midnight when junior doctors are working with minimal senior support. It could be hypothesized that this time would be the maximum risk for prescribing errors.

#### *5.2.1.3 Training*

Even though all pharmacists who are competent to practice within secondary care should be able to transcribe discharge prescriptions, for the purposes of Clinical Governance, the service should be accountable.<sup>62</sup> Therefore all pharmacists providing the service should be assessed against key competencies, to provide an equivalent service of a suitable standard. However this requirement is superseded by legal forms of prescribing being introduced with accompanying training and CPD requirements.

The results show that a relatively low number of hospitals have a formalised training programme (n=8). This therefore suggests that when 55% (n=27) said that they ask their pharmacists to undertake an in-house training programme in order to be authorised to transcribe, some of these training programmes may be ad-hoc arrangements.

The service should also be regularly audited to make sure that standards are being maintained. Principles of clinical governance are not being adhered to if these issues are not addressed.

#### *5.2.1.4 Responsibility and accountability*

Although PDPTS is widespread, the results of this study indicate that there is a lack of consensus on authorisation requirements for pharmacist-written prescriptions. The

Medicines Act 1968<sup>100</sup> does not define what a prescription is or what a hospital is. It is therefore not surprising that there is no authoritative interpretation of the legality of prescriptions written by non-medically qualified personnel.<sup>101</sup> However, this position does not seem to be a perceived barrier to pharmacists when implementing PDPTS (perhaps because they had not considered it).

A few hospitals commented that although it was in their official policy that the doctor should always sign the prescription (and had indicated this in their questionnaire response), in practice this did not always happen. Some respondents indicated that they *sometimes* obtained a doctor's counter-signature on their pharmacist-written discharge prescriptions. This approach is unlikely to be compliant with their protocols and raises a clinical governance issue. If there are mistakes on the prescriptions produced in this scenario, who is responsible and accountable for the overall quality of the prescription, shortcomings in care or even harm to the patient?

Those hospitals operating PDPTS without having a formal protocol in place (43 per cent, n=20) are also not following the principles of clinical governance as they do not have an accountable, safe system in place and are not providing their employee pharmacists with formalized support.

Another perceived problem in the provision of PDPTS is that prescribing and clinical checking roles are not separated thus creating a risk management issue. Some hospitals have overcome this issue by swapping the prescribing and checking roles with the doctor, so that the pharmacist writes the prescription and the doctor checks and signs it.<sup>70, 72</sup>

However, it could be argued that due to time constraints upon the doctor, the prescription in this situation may be authorised, but the clinical check may not always happen.

#### *5.2.1.5 How does the writing of discharge prescriptions by pharmacists "fit" within the legalized versions of pharmacist prescribing?*

Regardless of the lack of quality or bulk of evidence available to support the development of pharmacists writing discharge prescriptions, with the development of legal frameworks (Supplementary (SP) (legalized in 2002) and Independent

prescribing (IP) (legalized in 2006)) there has been much discussion as to how discharge prescribing “fits” within these models available for pharmacist prescribers. There has been one descriptive report published (2005) where a cardiac specialist pharmacist has used the SP model to write discharge prescriptions for cardiac patients.<sup>240</sup> However, it would seem that the need for an agreed clinical management plan for each condition that a patient has in order for a pharmacist to prescribe for that condition, would negate any benefits of a pharmacist writing a discharge prescription under this model.

Within the consultation process for the IP model,<sup>55</sup> it was specifically noted that “discharges from hospital may be expedited if pharmacists, who work as part of multi-disciplinary teams, can prescribe and supply appropriate medicines around the time of discharge, without having to wait for a doctor to sign a prescription.” Comment was specifically requested in the consultation upon IP about pharmacists using the IP model to prescribe discharge prescriptions. However, since independent prescribing for pharmacists has become legal,<sup>45</sup> it is not clear yet whether pharmacists are using this qualification to legalise or develop their practice in writing discharge prescriptions. It could also be argued that undertaking an in-depth qualification and then not needing to actually diagnose (as the discharge prescription should be written after the patients’ problem(s) have been diagnosed and treatment commenced) or physically examine the patient in order to write their discharge prescription may be excessive and hence prohibitive.

-A PGD would also not enable pharmacist prescribing of discharge prescriptions as the drugs and clinical situation need to be specified in the PGD.

It is apparent therefore, that there are several unanswered legal issues surrounding PDPTS if the model of IP is NOT used to legalize pharmacist-written discharge prescriptions:

- It is unclear whether the process itself is transcribing or prescribing. – Would a court of law view that a process whereby a list of medications was reviewed by a pharmacist and written on a document that was later accepted for dispensing at a pharmacy was not in fact prescribing but something else entirely?

- Who is legally responsible for the prescriptions that are written in this scenario? Therefore, who should authorise these prescriptions?

Central guidance from the Department of Health and tailored provision of training and assessment from higher education institutions should be provided for this specific role, as per the supplementary and independent prescribing model. Without standardised guidelines for this process, it could be viewed as a disaster waiting to happen.

#### *5.2.1.6 Factors that influence the provision of a PDPTS*

The most frequent reason cited for providing a PDPTS was to speed up the discharge service. Published studies provide evidence to support this reasoning.<sup>70, 74- 75, 99, 181</sup>

The system where medical practitioners write patients' discharge prescriptions at the end of the ward round when the consultant has decided that the patient is medically fit to go home is flawed, and leads to long waiting times for patients.<sup>75</sup>

The Department of Health's current discharge document suggests that in order to improve and speed up the discharge process, the roles of junior doctors and pharmacists in taking medication histories on admission and writing up take home medication needs to be reviewed.<sup>104</sup> It also suggests that the discharge process should be planned for at the earliest opportunity. Therefore by pharmacists writing discharge prescriptions in a timelier manner, the discharge process could be more efficient. If PDPTS was combined with a "one-stop" dispensing service<sup>241</sup> the discharge prescription processing time could be even further reduced, with both the prescription and supply of medications for discharge being managed by pharmacy earlier in a patient's stay.

The next most commonly cited reason for providing a PDPTS was to reduce errors on prescriptions/improve accuracy (50 per cent, n=24). This reason is also supported by published literature,<sup>72, 74, 99, 181</sup> and also by the Audit Commission report "A spoonful of sugar,"<sup>49</sup> which has reported that pharmacists are five times more accurate than doctors in writing discharge prescriptions. Prescribing by newly qualified doctors is currently under particular scrutiny as a result of changes in junior doctor training.<sup>242</sup>

It is apparent that extending prescribing rights to pharmacists would help towards meeting the Government targets of reducing serious medication errors by 40% by

2005 (It is unclear whether this target was actually met).<sup>63</sup> The presence of a pharmacist on clinical ward rounds has also been shown to prevent further errors occurring,<sup>49</sup> suggesting that pharmacists are also well placed to make interventions and review medication on the ward round as part of PDPTS.

If these systems were in place the flow of work in the dispensary would also be improved as errors would be rectified before the discharge prescription was written.<sup>181</sup>

Thirty-three per cent (n=16) of departments operating a PDPTS stated that one of their reasons for implementing the service was to release junior doctor time. Junior doctor time would not only be saved by not having to write the discharge prescriptions, but also from the reduced amount of time having to answer their bleep to rectify errors and omissions with the pharmacy department. The time saved by doctors from implementing such a service has been estimated as seven hours per doctor over a 3-month period,<sup>72</sup> 2 hours per doctor per week<sup>208</sup> and also 45 minutes per doctor per day.<sup>99</sup> Some pharmacy departments have managed to obtain funding for extra pharmacists to perform this role from resources provided to reduce junior doctors working hours.<sup>193</sup> This may be an option for consideration by those hospitals that had not implemented PDPTS due to funding problems.

One of the main reasons for **not** introducing PDPTS was lack of resources (n=18), and this claim is supported by the fact that the more pharmacists that are employed, the more pharmacist prescribing activities can be implemented.<sup>237</sup> Although insufficient pharmacist resource is a major obstacle to PDPTS implementation, if pharmacy services are examined there are many ways in which departments can become more efficient in the way that they work, for example, by moving towards a pharmacist-free dispensary, and developing ward pharmacy teams of a pharmacist and technicians and assistants.<sup>64-66</sup> This re-examination of the way that pharmacy departments work may release some pharmacist time for new roles including prescribing.

The first and second comments made by questionnaire respondents in the results section (p151) illustrate potential difficulties some pharmacy departments may have in extending their role. Views upon the extension of the pharmacist role by medical staff may be due to individual personalities and beliefs of the medical practitioner, who may not fully understand the level of training that pharmacists receive. This



situation may improve if chief pharmacists are elevated to the equivalent of a clinical director, and are members of the trust's management executive, as recommended by the Audit Commission report "A Spoonful of Sugar".<sup>49</sup> The chief pharmacist will then be in a stronger position to develop changes in pharmacists' practice. Also the implementation of SP and IP will mean that this type of opinion will inevitably change.<sup>48</sup>

When level 3 electronic prescribing is implemented, there will still be a role for the pharmacist to decide upon the appropriateness of treatment on discharge and input the discharge prescription onto the computer. Pharmacists are already using electronic prescribing systems in this manner, and have become more integrated into the healthcare team.<sup>48, 64-66, 193, 195</sup> Therefore, the advent of electronic prescribing should not be seen as the end of the involvement of pharmacists in the discharge process, which was inferred in the third comment presented in the results section (p151).

## 5.2.2 (2) Implementation, Risks and Concerns about supplementary prescribing: survey of primary and secondary care pharmacists

### 5.2.2.1 Section A and B

#### 5.2.2.1.2 *Issues for community pharmacy*

The percentage of Chief Pharmacists (CPs) and Primary Care Trust Pharmacists (PCTPs) intending to implement supplementary prescribing by the end of 2005 was similar (CPs: 57%, n=55, PCTPs: 56%, n=100). Within primary care, it was most common for primary care trust and general practitioner (GP) based pharmacists to be trained as supplementary prescribers rather than community pharmacists. This observation suggests that there are some potential obstacles for community pharmacists when it comes to developing this role. These obstacles can include lack of on-line access to patients' medical records, lack of a private area within the community pharmacy for the consultation to take place, difficulties in establishing funding for developing the service from the PCT and also lack of an established good working relationship with local GPs. It is therefore apparent that in order for community pharmacists to fully develop this opportunity to prescribe and develop services for patients, they have a lot more barriers to overcome than pharmacists in secondary care. Subsequent research has corroborated this finding as practicing in a setting other than community pharmacy was found to be a predictor of pharmacists starting to practice supplementary prescribing.<sup>214</sup> This research study utilized a questionnaire which was mailed to all RPSGB prescribers (n = 518), on June 1, 2005. They identified predictors of pharmacists starting to practice SP via univariate analysis, and significant variables were further tested in multivariate analysis. Their reasoning for development of supplementary prescribing being more problematic in primary care was due to lack of time, inadequate support staff, and insufficient awareness among other health professionals and the general public about the pharmacists' skills and attributes. They also noted a longer preparation time in setting up clinics in primary care, due to overcoming funding and organizational issues.<sup>214</sup>

A qualitative evaluation of supplementary prescribing found similar results, as one of its key findings was that community pharmacists wishing to practice as supplementary prescribers have particular obstacles to overcome including difficulties with medical record access, physical distance from the independent prescriber and

lack of funding provided for this service.<sup>213</sup> It is not only pharmacists within the community that have these extra obstacles before implementing supplementary prescribing. A recent questionnaire survey of qualified independent extended/supplementary nurse prescribers has also found that nurses in general practice (as opposed to primary care trusts) have far more reasons preventing the implementation of supplementary prescribing.<sup>127</sup>

One of the key recommendations from this piece of research was that community pharmacists may need additional support (financial, development of contracts and IT) from the local PCT to facilitate supplementary prescribing in the community pharmacy sector.<sup>213</sup>

#### *5.2.2.1.3 Service continuity*

Although most secondary care trust respondents indicated that junior doctors would provide cover for the supplementary prescriber in their absence, it has been suggested that provision of a pharmacist service would result in a superior prescription service in terms of safety and overall quality of the prescriptions.<sup>49, 72, 74, 99, 181</sup> Is it therefore acceptable for annual leave, sickness cover and over-night/weekend cover to be provided by a more inferior service? It is not acceptable for patient safety. The pharmacy profession does not provide a 24 hour service unlike the medics and nursing professions. There is therefore an inference that pharmacy services are not essential and that other professions are able to continue without our services at weekends and in the evenings. The goal should be the provision of a 24-hour service for hospitalized patients; however, at the moment, the limited number of pharmacists would make this impossible for most hospital trusts. Instead, a more realistic approach at the moment would be to ensure that all prescribers, from whichever healthcare profession, provide the same standard of service. In order to ensure that everyone is providing a service of equivalent quality, as mentioned in the introduction (p30) it has been suggested that in the future, ALL health-care professionals who are going to prescribe ought to pass a “prescribing exam” before they start prescribing. (Personal communications, Professor Judy Cantrill, BPC 2003) This would seem to be a fair approach, and would help to avoid the situation described at a hospital in the Wirral where pre-registration house officers were not allowed to prescribe for their first six weeks of practice without close supervision.<sup>242</sup> It would also avoid the perception of

increased medication prescribing errors being made when newly-qualified doctors start prescribing,<sup>243</sup> as well as reduce opportunity for litigation.

A more radical suggestion would be to vastly increase the numbers of pharmacists being trained so that in the future, within secondary care and in primary care a 24 hour service could be provided so that pharmacists superior prescribing skills are available to patients at all times.

Primary care respondents indicated that in the absence of the pharmacist supplementary prescriber, a nurse supplementary prescriber would provide the service if a GP was not going to be used. This may be because primary care has a large number of qualified nurse supplementary prescribers, and the therapeutic areas that most pharmacists are going to work in have clear, detailed guidance available (as discussed in following section), and are not as complex areas as some of the therapeutic prescribing areas in secondary care.

However, it also suggests that no distinction is being made between the types of prescribing that a pharmacist in e.g. a cardiac clinic will undertake compared to that of a nurse. If the type of prescribing is identical for both professions then a nurse would be chosen to run a clinic in preference to a pharmacist because the salaries for experienced clinical pharmacists and community pharmacists are higher than nurses' salaries.

It may also be possible that as GPs are more familiar with working closely with nurses and hence have established working relationships with them. Most importantly, trust may have been developed in their relationships so they are more confident about using nurses as supplementary prescribers. In primary care, GPs tend to have less experience of working closely with pharmacists and hence they may be more hesitant about pharmacists developing supplementary prescriber clinics. This means that pharmacists will have to establish areas (such as more complex polypharmacy areas) for their more expensive clinical expertise, and a distinction will have to be made about what types of clinics the different professions are going to offer in each clinical area. The other important criteria for successful development of supplementary prescribing clinics will be the development of a closer working relationship with GPs so that trust can be developed as well. This will lead to acceptance of pharmacists as prescribers by the medical profession and hence patients. A good relationship between the SP and the independent prescriber (i.e. doctor) and a long standing existing

relationship of trust between professionals have also been identified as key success factors in the London Pharmacist Supplementary Prescribing project 2003-2006.<sup>244</sup>

#### *5.2.2.1.4 Therapeutic area*

The most common clinical areas served by supplementary prescribing pharmacists in secondary care reflect those areas where pharmacist prescribing input has already been established (Table 11, p155).

The most common area that chief pharmacists were training pharmacists to be supplementary prescribers in was total parenteral nutrition (TPN), an area in which pharmacists are already working.<sup>245- 246</sup> Pharmacists have a long established role as part of nutrition teams within most hospitals,<sup>247</sup> and also have a key input in the individual composition of TPN prescriptions for patients. Pharmacists have also had established roles in the areas of oncology/haematology, cardiology and anticoagulation<sup>83-86 246 248-254</sup> which were also found to be areas where pharmacists were being trained as supplementary prescribers. Subsequent research upon pharmacist supplementary prescribers has confirmed that cardiovascular conditions are a common therapeutic area for these prescribers.<sup>214</sup>

It is not surprising that pharmacists are being trained as supplementary prescribers in therapeutic areas such as renal, rheumatology, HIV and care of the elderly.<sup>245- 246, 250, 255</sup> Again, these are areas where pharmacists have established clinical roles<sup>93, 256</sup> and pharmacist prescribing is well suited due to the polypharmacy, complexity of the medication (e.g. numerous drug interactions) and multiple concurrent conditions that are often associated with these patients.

Some therapeutic areas that are being targeted for SP have associated National Service Frameworks and other published national guidance available.

The publication of the NSF for older people<sup>257</sup> which sets standards in care, recommended that all elderly people should normally have their medications reviewed at least annually (every six months for those taking four or more medicines), and receive more help from pharmacists in using their medicines. Therefore this area provides a suitable target for pharmacist supplementary prescribing services.

The NSF for Renal Services was published in January 2004,<sup>258</sup> which emphasizes the extensive role that pharmacists can have in optimizing medication in this area. So again, this area should be targeted for supplementary prescribing by pharmacists.

Another therapeutic area that was commonly identified as being one in which pharmacists were being trained as supplementary prescribers was surgical/orthopaedic preadmission clinics. As described for the other therapeutic areas, pharmacists had a well developed role in this area before the advent of supplementary prescribing. Pharmacists were involved in taking medication histories, writing the patients current medication onto the in-patient drug chart during these clinics, and also following protocols for standard antibiotic prophylaxis and thromboprophylaxis to be written onto the in-patient drug chart as well.<sup>76-78, 80, 82, 176- 177, 259</sup>

Indeed, since this research was undertaken, a review of the London Pharmacist Supplementary Prescribing project 2003-2006 has been published and this has confirmed the findings from this research, stating that one key success factor for supplementary prescribing was implementing it into an established pharmacist-led service such as total parenteral nutrition.<sup>244</sup>

By training pharmacists as supplementary prescribers, doctors will no longer need to co-sign inpatient drug charts and pharmacists' roles in these established areas of secondary care will become legitimized.

Primary care has focused its supplementary prescribing training on quite different areas from secondary care. This may be due to the implementation of the new General Medical Services (GMS) contract in April 2004, for GPs.<sup>260</sup> In this new contract, payment for services focuses upon improving the overall quality of clinical care for patients. Within the GMS contract, the QUOF specifies disease categories where more comprehensive service provision will be rewarded with more substantial payments. The top five clinical areas identified for primary care pharmacist supplementary prescribers (Table 1) are the same as those specified in the QUOF. It would appear that this has happened because GP practices are targeting the development of services in these areas in order to enhance their payments. These areas are also subject to detailed guidance published over the past few years in the form of NSFs, (the coronary heart disease NSF was published in March 2000,<sup>261</sup> the diabetes NSF in 2001<sup>262</sup>) and also specialist guidelines developed by the British Thoracic Society and the Scottish Intercollegiate Guidelines Network for Asthma,<sup>263</sup> NICE guidelines for COPD<sup>264</sup> and by the British Hypertension Society for hypertension.<sup>265</sup> Therefore these clinical areas are extremely suitable for pharmacist

supplementary prescribing, as the clinical management plans can refer the pharmacist to such national guidelines.

Subsequent research has recently reviewed Prescription Analysis and Cost (PACT) Data from community and primary care supplementary prescribers from 2004 to 2006 and this has also shown that the most commonly prescribed therapeutic class of drugs for this group of supplementary prescribers was cardiovascular medicines.<sup>266</sup> This finding supports the findings of this research where clinics in the therapeutic areas of hypertension and coronary heart disease/hyperlipidaemia were found to be most commonly reported for this sector.

Pharmacist supplementary prescribing in mental health appears to be uncommon in both primary and secondary care. This is rather surprising considering that it is a clinical area identified in the QUOF, and that there is a NSF<sup>267</sup> for this therapeutic area.

The United Kingdom Psychiatric Pharmacy Group (UKPPG) and College of Mental Health Pharmacists (CMHP) have published a statement upon their position with respect to supplementary prescribing.<sup>268</sup> They are advising their members that they believe that in order to be a competent supplementary prescriber in mental health they require membership of CMHP in addition to receiving the required supplementary prescribing training. This is the only specialist clinical pharmacy group to have any additional requirements. These additional requirements may have a negative effect on pharmacists wishing to become supplementary prescribers in this area. Alternatively, they may reflect an attitude within the mental health community that prescribing in this area is more complex than other therapeutic areas.

Therefore this data upon therapeutic areas suggests that for secondary care, supplementary prescribing is not being used to drive forward non-medical prescribing for pharmacists, but instead is being used to legalize prescribing that is already taking place. It is therefore not being seen as a dynamic model that is being used to create new roles and is not providing a model that is really workable within secondary care.

For primary care, it is being used to develop new services, but it is driven by the QUOF for medical services and by those PCTs who perhaps are more forward-thinking in developing the pharmacists' role. It is therefore leading towards development of non-medical prescribing in an ad-hoc manner where some geographical areas will have good access to non-medical prescriber services and other

areas will not. This development has therefore not led towards increased access to healthcare for all patients.

#### *5.2.2.1.5 Problems with implementation of supplementary prescribing*

Five primary care trusts reported that although they had nurses trained as supplementary prescribers, they were not prescribing at the moment. Although no reasoning was given for this, part of the requirements for training as a supplementary prescriber include support of their employer to confirm that the SP will have access to a budget to meet the costs of their prescribing and that their post is one in which they will have the need and opportunity to act as a SP.<sup>48</sup> Therefore it appears that although these requirements for supplementary prescribing training have been implemented to avoid wasting resources they do not seem to be working in all cases. Recent research has found some reasoning as to why this might be. -A questionnaire survey of 868 qualified independent/extended/ supplementary nurse prescribers found that supplementary prescribing was being used by a minority of nurses (n=304, 35%) and that the reasons for this included the inability to generate computer prescriptions and problems with implementing the clinical management plan.<sup>127</sup> There has been research published about the practical difficulties that have been encountered with regards to independent nurse prescribing from the NPF which supports these findings regarding supplementary prescribing. The research suggests that issues such as organizational support, support from members of the team, communication issues, difficulties accessing medical information about patients and inability to produce computer-generated prescriptions, difficulties in coming to terms with this increased responsibility and fears of litigation, concerns about keeping up to date (CPD) and lack of confidence<sup>43, 122, 269- 270</sup> have hindered development of nurse prescribing. Also more practical issues have been highlighted such as getting hold of prescription pads, lack of time in clinics, inability to prescribe for patients from other trusts, keeping records, situations requiring items from more than one prescriber and security concerns.<sup>271</sup> It is likely that such problems will also face nurse supplementary prescribers as well. A recently published study sought to identify barriers that could either prevent community nurses from prescribing altogether or reduce the number of times that a nurse might prescribe and to determine how wide spread the barriers identified above were. Qualitative semi-structured interviews with nurse prescribers and Trust prescribing leads were undertaken and a postal questionnaire was sent to the



nurse prescribing leads in each Primary Care Trust across three strategic health authorities in England. Barriers identified in this study were those that (i) prevented prescribing included: roles with no patient contact, prescription pads not issued, opposition from general practitioners and lack of confidence; (ii) prevented some prescribing: included lack of time in clinics, inability to prescribe for patients registered with another Trust, security concerns, lack of access to patient medical records and the use of alternative methods of supply (iii) made prescribing more difficult included: keeping records, informing general practitioner of items prescribed, delivering prescribed items to housebound patients and situations requiring items from more than one prescriber.

Indeed in the London Pharmacist Supplementary Prescribing project 2003-2006 summary of project outputs and reflection on progress of pharmacist prescribing report<sup>244</sup> it is highlighted that in order for supplementary prescribing to work, practical implications of setting up a prescribing service such as finding clinic space and time, administrative assistance and ordering prescription pads needs to be tackled. Subsequent research regarding pharmacist supplementary prescribing has also confirmed that similar issues face pharmacists. One study has found that funding issues were identified as major barriers in implementing supplementary prescribing and that lack of organizational recognition of supplementary prescribing was the main reason given for those not commencing practice once qualified.<sup>214</sup> Another questionnaire study of pharmacists that had qualified as supplementary prescribers also found similar barriers to the successful implementation of supplementary prescribing, such as inadequate funding, no organizational recognition of supplementary prescribing, non-availability of prescription pads, difficulties in the referral process/identification of patients and poor recognition of pharmacy role by other health professionals.<sup>272</sup> Other research has also found issues with administrative problems, lack of organizational recognition, funding, access to medical records and lack of resources as well.<sup>213, 216- 217, 273</sup>

Alongside these practical issues, there have also been some concerns raised about the practicalities of using the clinical management plans in practice.<sup>213</sup> -The Department of Health commissioned the National Prescribing Centre (NPC) to undertake a scoping study to find out how supplementary prescribing might work in practice in 2005. The NPC brought together a range of nurses, pharmacists and the doctors they

work with, from different settings and specialties across primary and secondary care, to 'try out' supplementary prescribing. They invented some typical patients, and worked up Clinical Management Plans for them, identifying the information that would need to be included, and the best ways to reduce duplication of effort while ensuring patient safety. Their findings included that Clinical Management Plans (CMPs) have to be relatively simple and quick to complete - or supplementary prescribing will simply not be worth the effort. They should not duplicate a lot of information that is already recorded in the shared record. Also that supplementary prescribing might need to include team as well as one-to-one prescribing partnerships, when service delivery is organized in this way, and that for patients with multiple health needs, or multiple professional carers, supplementary prescribing may not be suitable at all: the independent prescriber can decide whether or not it is appropriate to implement supplementary prescribing for any patient.<sup>274</sup> A recent review of literature upon supplementary prescribing<sup>273</sup> has concluded that although having a standard format for the CMP offers consistency and procedural certainty, this is at the expense of having flexibility and an easy to use document. This is contrasted with protocol and collaborative prescribing models such as those used in USA where prescribing rights are arranged at an organisational level, which improves the flexibility of these arrangements.

Therefore it would appear that there are some similar issues facing all new non-medical prescribers. It is therefore essential that there is support from the medical profession and other healthcare organizations for this role if it is to be a success. One of the key recommendations from the qualitative evaluation of supplementary prescribers undertaken on behalf of the RPSGB<sup>213</sup> was that if supplementary prescribing was to be effective, then there needs to be support for training and support for the practical processes that make supplementary prescribing work at ground level, including computer accessibility and prescription printing, -alongside having clear lines of responsibility and accountability (as outlined in the RPSGB's clinical governance framework<sup>105</sup>).

Trusts should monitor the prescribing of their non-medical prescribers, target appropriate support and encouragement to address problems with prescriber confidence, develop strategies to integrate their non-medical prescribers into the

healthcare team to improve access to patients' medical notes, and improve the efficiency of the prescribing process.

#### *5.2.2.1.6 Nurse supplementary prescribing*

Primary care has many more trained nurse supplementary prescribers than secondary care. This is probably because nurses have been able to prescribe in primary care since 1998; therefore the prescribing role of nurses is well established in this sector. Another reason for secondary care having less nurse prescribers is that the model of supplementary prescribing is more tailored for treatment of chronic diseases and therefore its applicability to acute conditions in secondary care is more limited. There may also be reluctance amongst secondary care nurses to take on a prescribing role, due to their lack of familiarity with non-medical prescribing roles. However, further research would be necessary to confirm this.

The Government stated that it was their intention to ensure that half the nursing workforce had prescribing rights by 2004,<sup>40</sup> therefore there has been increased impetus to train nurses as supplementary prescribers than compared to pharmacists.

#### *5.2.2.1.7 Therapeutic areas*

The top clinical areas for nurse supplementary prescribing are very similar for primary and secondary care, with asthma, diabetes, COPD and heart failure all appearing in the top five clinical areas (Table 10). Respiratory medicine,<sup>275-278</sup> diabetes<sup>279</sup> and heart failure<sup>280 281</sup> are all clinical areas where specialist nursing input has been long established.

Other clinical areas selected for nurse SP in primary care include areas where nurse-led clinics are already taking place, such as family planning services,<sup>282 283</sup> minor injuries services<sup>284</sup> and smoking cessation clinics.<sup>285 286</sup>

Similarly, nurses in secondary care have developed specialist roles, such as in accident and emergency medicine,<sup>287</sup> palliative care<sup>288</sup> pain teams<sup>289</sup> and anticoagulation,<sup>290</sup> so it is not surprising to see these clinical areas in the results. Therefore there is a lot of scope for nurses specializing in these areas to become supplementary prescribers.

The fact that the most common therapeutic areas are the same for primary and secondary care reflects that nurses skills as prescribers are well targeted at chronic

disease areas, where drug therapy choices can follow national guidelines, and where polypharmacy is not such an issue. As discussed in the introduction (p28) concerns have been raised by nurses themselves,<sup>28</sup> the medical profession,<sup>16</sup> and amongst descriptive research, upon the pharmacological knowledge base of nurses.<sup>25 27</sup> It would therefore seem appropriate that different healthcare professionals' prescribing skills should be targeted at the most appropriate areas. For secondary care, nurses and pharmacists have already developed their own prescribing "niches" which are accepted by other health care professionals.

Within primary care, the General Medical Services (GMS) contract for general practitioners<sup>260</sup> may well have also influenced the top 5 clinical areas that nurse supplementary prescribers are currently working within. These clinical areas are also subject to detailed guidance published over the past few years in the form of NSFs<sup>261-262</sup> and specialist guidelines.<sup>263-265</sup> This makes these clinical areas very suitable for nurse supplementary prescribing in primary and secondary care, as the clinical management plans can refer to these national guidelines.

Table 3 indicates that within primary care, nurses attached to individual GP practices are most commonly taking up SP, which may be due to more support and encouragement for them to take this role on in comparison to non-practice based nurses that work on their own in walk-in centres and schools.<sup>269</sup>

#### *5.2.2.1.8 Implementation of pharmacist supplementary prescribing*

Development of a standardized competency framework for pharmacists once they have qualified to practice, has only recently been developed.<sup>291</sup> Although this will standardize the skills of e.g. senior clinical pharmacists from Trust to Trust, it will not differentiate the pharmacists who are supplementary prescribers.

Currently, in most hospitals there is no differentiation between the skills necessary to practice as a clinical pharmacist versus a senior clinical pharmacist, making it difficult for doctors to be able to understand the knowledge and competency of different pharmacists when requesting advice. In 2004, the Government brought in a new single pay system for the NHS, entitled "Agenda for Change".<sup>292</sup> It applies to all directly employed NHS staff with the exception of doctors, dentists and some very senior managers. The remit of "Agenda for Change" was to evaluate all jobs within the NHS to ensure that staff was being paid at an appropriate rate for their services, to

harmonise terms and conditions and to also introduce a Knowledge and Skills Framework (KSF) that would allow progression and development of staff via annual review of performance.

Although “Agenda for Change” was supposed to produce standardization of skills and pay for e.g. basic grade pharmacists versus senior clinical pharmacists, anecdotally, there has been much disappointment in the implementation of the system which has led to disharmony of the grading system from Trust to Trust.

The development of non-medical prescribing might compound doctors’ confusion (and other health care professionals) when trying to distinguish among the skills of various pharmacists. Published research involving nurse supplementary prescribers has already suggested that this development has caused such confusion.<sup>6</sup>

Community pharmacists will also have difficulty understanding which health care professional has which type of prescribing rights when presented with a prescription. The development of supplementary prescribing will also cause confusion to the general public, as some community pharmacies will have pharmacists that can prescribe medicines and others will not. Therefore it is important that the general public is well informed about this development.

#### *5.2.2.1.9 Recruitment of Designated Medical Practitioners (DMPs).*

Although both primary and secondary care trust respondents rated time commitment and workload as the two most important factors affecting recruitment of DMPs, primary care also highlighted the lack of funding for the role. Indeed another study has found that general practitioners that have been involved in supervising nurse prescribers had done so due to initial enthusiasm for enabling nurses to prescribe. However the doctors involved in the study did comment that there was a strong feeling that further involvement in supervision needs to take into account doctors’ time involved in doing so and also needed to address the lack of financial remuneration, especially if doctors are to be involved in supervising nurses and other health care professionals who are not closely associated with a GP or hospital consultant.<sup>293</sup> For secondary care, this is not such an issue as all doctors are employees of the NHS. Also in the majority of cases, it will also help their own clinical area as well, by releasing the doctors’ time to deal with more complex cases, and improving access to services for patients.

For primary care, GPs receive payment individually based on the services they offer. To supervise a supplementary prescribing trainee, the GP may expect to receive payment for it, unless there is a clear business case presented to his or her practice, outlining the benefits that the service will provide.

This may make it difficult for those nurses and pharmacists who are not employees of a practice to recruit a DMP to supervise their training, which has also been suggested elsewhere.<sup>293</sup>

Anecdotal reports from practice support this theory as they suggest that it does seem to be more difficult for community pharmacists to find a mentor to supervise their training compared to PCT and hospital pharmacists. The reason for this increased difficulty being that the GPs thought they ought to be paid to be a mentor, particularly if the pharmacist works in a different location to them.<sup>294</sup>

When asked whether recruitment of DMPs would be more difficult for pharmacists rather than nurses, the majority of chief pharmacists disagreed with this statement, but the majority of primary care trust pharmacists agreed with it. Other than the reasons outlined above, in primary care, pharmacists also have less day to day contact with doctors than pharmacists in secondary care, which may mean that GPs do not fully understand the skills that pharmacists have, and therefore do not see the potential for development of pharmacist prescribing services. Upon examination of their reasoning, reasons such as “GPs do not understand a pharmacist’s skills/ do not have an established relationship with them”, “Pharmacists are viewed as being business focused/ non-NHS” and “pharmacists are seen as a threat” certainly illustrate the need for pharmacists in primary care/community pharmacy to develop closer working relationships with their local GPs to overcome these barriers.

Speculation upon why recruitment of DMPs may present difficulties may not have been necessary if I had undertaken additional qualitative research alongside this study. By interviewing doctors in primary and secondary care about whether they would be happy to become a DMP more insight may have been established.

#### *5.2.2.1.10 Commissioning of primary care supplementary prescribing services*

The people charged with implementing supplementary prescribing for pharmacists and nurses in primary care varied (Table 15 and 16). For primary care this array of different people will inevitably lead to different PCTs having different priority levels for implementation of this development and also extensiveness of implementation will vary considerably. Implementation of pharmacist SP will also be affected by the new community pharmacy contract.<sup>295</sup> The first and second tiers of the contract are termed essential and advanced services, and these services will be funded via a national agreement. However, the third tier of enhanced services, which will include supplementary prescribing services, will be commissioned by PCTs meaning that if a PCT does not see a need for a particular service, pharmacists will not get paid for providing it.<sup>296</sup>

Again, it is essential for community pharmacists to make their PCTs aware of the services they are capable of providing and the benefits that can be derived from such services for the local population.

Further reorganization of PCTs started in 2004, whereby mergers of PCTs reduced their number from 303 to 100-150 across England. This happened because there was a growing belief that many trusts are perhaps ineffective organizations, unable to commission acute healthcare effectively and unable to fulfill public health responsibilities.<sup>297</sup> During this reorganization, the commissioning of enhanced services such as supplementary prescribing for pharmacists and for nurses may have been even more difficult until PCTs settled any structural reorganization during 2007. The development of supplementary prescribing services will also need to make sense for community pharmacies. Although many multiple pharmacy businesses have been able to offer services such as cholesterol testing for free, smaller, independent pharmacies cannot offer such services without recompense. It is extremely important that pharmacy businesses maintain a united front when negotiating payment for supplementary prescribing services from PCTs.

#### *5.2.2.1.11 Is SP a “one-size fits all” model?*

The lack of national strategy to guide which therapeutic areas are more in need of pharmacist supplementary prescribers' input may mean that some patient groups may still have reduced access to services, and that doctors working within these areas will still have unmanageable workloads and waiting lists. Conversely, it may allow

development of services in response to need and hence may produce better services. At the moment it seems that the GPs' QUOF is having an influence on the therapeutic areas that supplementary prescribing is being undertaken in primary care, as explained earlier (p284). It might therefore seem sensible for the Department of Health to suggest target areas within the QUOF where this role development is more urgent (in terms of patient needs) than others in order to encourage GPs and PCTs to develop and utilize non-medical prescribing.

The way in which supplementary prescribing is being implemented in primary and secondary care suggests that one model of non-medical prescribing may not be the "one-size fits all" answer that had been hoped for. Primary and secondary care is very different in terms of funding, inter-professional relationships and methods of working, which means that slightly different models of non-medical prescribing may be needed. Due to the necessity of producing a clinical management plan for the patients' condition that is being treated by the pharmacist or nurse SP, supplementary prescribing is more suited for the management of chronic conditions in primary care rather than acute conditions that are seen in secondary care.

The rationale for implementing supplementary prescribing must also be examined. It has been suggested that the main driver relates to resource issues within the NHS and the curbing of escalating healthcare costs<sup>6</sup> rather than improving the quality of prescribing in terms of overall quality of prescribing will be crucial to prove that in the very least, the quality is not inferior to that of medical practitioner prescribing.

The development of independent prescribing may well offer more flexibility for secondary care non-medical prescribers, and address some of the highlighted difficulties that community pharmacists will face with respect to supplementary prescribing. Supplementary prescribing may be viewed as being a transitional prescribing model and of value only in appeasing the medical profession alongside acting as a "training" prescribing model for newly qualified non-medical prescribers to start prescribing with, before starting Independent Prescribing.<sup>273</sup> Independent prescribing rights may be more welcomed than the supplementary prescribing model, and hence may potentially undermine the success of supplementary prescribing.<sup>273</sup>



#### 5.2.2.2 Section C

##### *5.2.2.2.1 Comments upon individual items in the scale*

For question 19 (secondary care)/ 20 (primary care) (Appendix 4 and 5), the majority of primary and secondary care disagreed with the statement that there is a risk that SPs' may not appreciate the signs and symptoms that the patient declares to them during the consultation. Open comments were made that there is a risk for ANY prescriber that they will not appreciate the signs and symptoms being declared to them by the patient. Also, clinical governance should help to prevent this sort of problem occurring, thorough maintenance of competency from on-going continuing professional development and audit. Anecdotally, the close scrutiny of non-medical prescribing has inadvertently led to questions being raised about the quality of doctors' prescribing training, by the medical profession themselves. It can only be a matter of time before the medical profession also has to use more rigorous training and assessment of prescribing skills of their newly qualified graduates.

For question 20 (secondary care)/ 21 (primary care) (Multiple prescribers, arising from the introduction of SP, will increase the prevalence of iatrogenic disease), several open comments were made. As long as good communication between prescribers was maintained then this should reduce the risk of iatrogenic disease. Good communication and maintenance of medical records is therefore paramount for patient safety. The importance of good communication between different prescribers when supplementary prescribing is implemented has been highlighted as a key factor for success by healthcare professionals<sup>6</sup> and by the London Pharmacist Supplementary Prescribing project 2003-2006 report<sup>244</sup> and the qualitative evaluation of supplementary prescribing report on behalf of the RPSGB.<sup>213</sup> This problem has also been highlighted in nursing research regarding supplementary prescribing, where it has been noted that communication with respect to medication was not as good as it should be and would need to be improved if supplementary prescribing was going to work.<sup>6</sup> It should be noted that better communication should be facilitated when level 3 electronic prescribing is implemented.<sup>192</sup>

Open comments were made on some questionnaires about the issues surrounding the importance of good communication. Comment suggested that poor communication may be more applicable to nurse supplementary prescribers, especially those who prescribe in a very narrow, specialist area, who may not be aware of the impact that

their drug initiation may have on concurrent conditions that the patient may have. It was suggested that for pharmacists, this may not be such an issue due to their broad knowledge of pharmacotherapeutics. There may have been some bias in the comments made about this statement, as the respondents were all pharmacists. However, in practice it appears that prescribing nurses have been cautious about their extended role, and are very aware of their responsibilities.<sup>122</sup> They are therefore likely to produce more detailed notes in the patients' medical notes than doctors. The main problem that faces all types of healthcare professional is how do you know what you do not know? Being aware of your limitations is also going to be crucial in order to maintain patient safety.

For question 25 (for both primary and secondary care), that "Lack of assessment of applied therapeutics in the prescribing area means that the training model for SP is not sufficiently robust" there were some comments made that they would agree that the lack of assessment of applied therapeutics in the prescribing area **for nurses** (not pharmacists) meant that the supplementary prescribing model was not robust. Again, the comments made may be biased as the respondents were all pharmacists. However, as discussed in the introduction (p28) the descriptive research regarding the pharmacological knowledge base of community nurses has consistently suggested that they may have knowledge deficits.<sup>25, 27, 298</sup>

There are some SP courses available that run as a joint course for nurses and pharmacists. However, it is apparent that the different professions have very different needs and requirements from their training. For instance, initial evaluation of the supplementary prescribing training for pharmacists suggests that the trainees would prefer there to be more training in physical examination and consultation skills within the courses investigated, and less basic pharmacology and pharmacokinetics.<sup>215</sup> It would therefore seem appropriate for profession specific courses to be utilised rather than generic supplementary prescribing courses.

If the newly developed standardised competency framework for pharmacists<sup>291</sup> was tied in with the requirements for pharmacist prescribers, it will make the prescribing role a safer one for both the prescriber and the patient, and would tackle some of the concerns about lack of therapeutics assessment within the SP training. Similar requirements would of course, be necessary for nurse supplementary prescribers.

It will therefore be very important, in terms of risk management, to ensure that the principles of clinical governance are adhered to. Trusts need to ensure that they have an accountable and safe system in place, with formalised support for their non-medical prescribers, to ensure that patient safety is maintained. Undoubtedly, pharmacists should have a major part in the development of such a system.

Although it was most common for primary and secondary care respondents to agree with question 29, that DMPs ought to undertake prescribing training themselves before assessing the prescribing competency of other health care professionals, there were comments made that this, however, would not happen, and that if it were a requirement, there could be even less medical practitioners willing to take on the DMP role. A requirement such as this is likely to be unworkable. Instead new requirements for prescribing training would need to be introduced for the medical profession at undergraduate level and upon qualification, and make an assumption that as qualified doctors are already prescribing, they are competent.

Question 33/32 (secondary care/primary care) upon conflict within the pharmacists' role with respect to being a prescriber and providing impartial advice to the public, was included after it had been suggested that this might be an issue for pharmacists especially in community pharmacies where it may not be possible to separate the prescribing and dispensing roles. However, the majority of respondents in primary and secondary care disagreed with this statement, and comments were made that the pharmacists' professional and ethical duties would prevent this from happening.

Question 34/33 (secondary/primary care) suggested that undergraduate pharmacy students should qualify as supplementary prescribers upon graduation. The majority of secondary care respondents disagreed with this statement whereas primary care respondents mainly agreed with it. For those who disagreed with this statement, the comments suggest that it was thought to be appropriate to teach the principles and theory of supplementary prescribing at undergraduate level, but that there was a period of practice as a pharmacist required before becoming a qualified supplementary prescriber. However, it had been the intention of the Department of Health to consolidate all of the supplementary prescribing training into the undergraduate course over a few years, so that pharmacists would qualify upon

graduation.<sup>299</sup> Whether this is still the case now that supplementary and independent prescribing is becoming established and there is now more experience of the requirements of non-medical prescribers is questionable.

It is possible that primary care had less concerns about pharmacy graduates attaining the SP qualification upon graduation because newly-qualified pharmacists in primary care have much more autonomy upon qualification, and often manage their own pharmacies.

Both primary and secondary care respondents agreed to question 35/34 (secondary/primary care) upon whether independent prescribing would be more useful than supplementary prescribing (SP). For secondary care respondents, this may reflect that SP is for chronic disease management and therefore the SP model does not suit secondary care very well because it manages acute illness.

Primary care respondents also agreed with the statement, which may reflect that for community pharmacists, independent prescribing may be more suitable and fit in with the majority of their premises not being located within GP surgeries. It would be especially suitable for their role in dealing with minor ailments and minor injuries. It was commented that for practice pharmacists, dealing with chronic conditions, that supplementary prescribing would be the prescribing model of choice.

#### *5.2.2.2.2 Factor scores*

The distribution of scores for the three factors in primary and secondary care illustrate that both sectors have a tendency towards negativity about the supplementary prescribing training model. For both sectors, the concerns included the paperwork and the clinical management plan that needs to be developed. These concerns have also been raised other studies. A questionnaire study of pharmacists that had completed supplementary prescribing training at Kings College London and Homerton College Cambridge found that half of the respondents anticipated problems in obtaining workable clinical management plans.<sup>215</sup> A qualitative study involving interviews with pharmacists before and after supplementary prescribing training also found that in practice producing clinical management plans was very time-consuming.<sup>216</sup> The qualitative evaluation of supplementary prescribing on behalf of the RPSGB also found that specifically within secondary care it was becoming clear that CMPs were not necessarily working in practice, as the research team found that in some secondary

care settings, they did not use CMPs at all,<sup>213</sup> which is of course, illegal. So this evidence supports the concerns that chief pharmacists and primary care trust pharmacists had in this survey about the unworkable paperwork system for this model of prescribing.

Another concern that secondary care had about the training model for supplementary prescribing were how reassessment of on-going competency of the supplementary prescriber would take place. It would seem that concerns regarding competency would be well placed with regards to nurses, as a recent survey of nurse supplementary prescribers found that 32% (n=277) of respondents to a questionnaire were unable to access continuing professional development.<sup>127</sup> The National Prescribing Centre have developed a comprehensive competency framework for pharmacist supplementary prescribers in 2003, so as long as the pharmacist has support from their employer to allow them to have the time for CPD, there is a supporting framework for them to refer to in order to self-assess their competence.<sup>107</sup>

Also, suggestions have been made that pharmacists are not allowed to remain qualified as supplementary prescribers if they have not practised for 2 years,<sup>213</sup> in order to add a safety-net for the patient. However, this has not as yet been made a requirement by the RPSGB.

Primary care had the same concerns over the paperwork involved but also had concerns over the lack of clinical assessment in the SP training and the risk of increased prevalence of iatrogenic disease due to poor communication between prescribers. It is likely that these issues are of more concern to primary care because there is less opportunity for community pharmacists to undertake further postgraduate clinical training in the form of clinical diplomas, whereas in secondary care, it has become embedded within the development of pharmacists to become senior clinical pharmacists. Working within a team of pharmacists in secondary care also allows for learning from colleagues in formal lunchtime teaching sessions as well as informal discussions with more experienced colleagues.

Poor communication between different healthcare professionals is also likely to be of more concern to primary care pharmacists as they do not work as closely with doctors and nurses as secondary care pharmacists do. Within secondary care, ward pharmacists develop close working relationships with these professionals as they advise them every day when they visit the wards. They also have free access to the

patients' medical notes, which of course, community pharmacists do not. It is therefore unsurprising that the primary care sector should have these understandable concerns.

Both sectors were however, positive about the implementation of supplementary prescribing, and believed that pharmacists wanted to take this role on. People who scored highly on factor 1 (secondary care) or factor 3 (primary care) either did not perceive SP to require much effort on their part, or, if they did, that the effort was worth it.

Therefore it would appear that although the profession has concerns about the training model and competency of supplementary prescribers once qualified (in terms of the lack of clinical assessment within the training programme and prescribers not understanding the significance of symptoms that are declared to them during the consultation), there is an understanding of the importance of this development, and that it needs to be taken forward within the constraints presented.

A small survey of community pharmacists' views upon supplementary prescribing would seem to support this finding of positivity about the implementation of supplementary prescribing. The survey found that a large majority wanted to become supplementary prescribers although only a few of them were currently in training for the role. Supplementary prescribing was being viewed very positively in terms of increased use of clinical knowledge, job satisfaction, responsibility and patient benefit.<sup>300</sup>

It appears that early optimism for pharmacist supplementary prescribing has not converted into large numbers of pharmacists qualifying as supplementary prescribers. In 2002 when it was announced that new powers for pharmacists and nurses to become prescribers, the National Prescribing Centre (NPC) carried out a preliminary baseline survey of all PCTs in England to help identify early NHS thinking on new prescribing roles. At this stage, 71% of PCTs across England were expecting some pharmacists in their area to become prescribers by 2005.<sup>301</sup> The survey that was undertaken during this research study found that by 2004, this percentage had decreased to 56%. In 2002, the Government announced that it expected that there would be 1,000 pharmacists trained as supplementary prescribers by the end of 2004.<sup>302</sup> In reality this figure was only reached in November 2006 when there were 1088 pharmacists qualified as supplementary prescribers. These figures perhaps

reflect the practical problems there have been with the supplementary prescribing model and also with its implementation.

Alongside these practical issues, there are also issues regarding acceptance of this extended role by the medical profession. Recent research is now suggesting that although GPs still question community pharmacists' motivation for prescribing and whether they will be compromised by commercial concerns, they are selectively accepting some aspects of pharmacist supplementary prescribing.<sup>10</sup> It appears from this research that doctors are exerting their control over supplementary prescribing by defining the areas where non-medical prescribers might operate, so that they are working in therapeutic areas where there are clear treatment guidelines that can be followed.<sup>10</sup> However, with the advent of IP, the medical profession is not going to be able to have controls over what the non-medical prescribers do and will be able to merely accept the practice and embrace it within their day to day working pattern or shun the development. The more experience develops with non-medical prescribing, the more it will be accepted into normal practice both by the medical profession and patients.

#### *5.2.2.2.3 Exploring relationships between the factors and the respondents*

The results suggest that as respondents had more experience of non-medical prescribing within their Trust (such as pharmacists writing discharge prescriptions) they were less likely to have concerns over the SP training model (see p176). Therefore the concerns that respondents had about training may not turn out to be an issue in practice.

#### *5.2.2.2.4 Reflection on findings in an international context*

On the basis of the UK experience, consideration should be given to the introduction of prescribing into the education programmes of pharmacists at an early stage if the supplementary prescribing model is to be developed in other countries. Where specialisation exists, for example the hospital pharmacy specialisation programmes in France and Spain, training in prescribing in secondary care could be included relatively easily. This issue should be discussed on a wider level, and perhaps European initiatives such as the Bologna Agreement could be used as a means of introducing prescribing practice into the undergraduate pharmacy curriculum.

### 5.2.3 (3) Patients' views and opinions of pharmacists and nurses as independent prescribers

#### 5.2.3.1 Non-medical prescribing generally

##### 5.2.3.1.1 *Benefits*

The results of this study do confirm that the benefits of the introduction of non-medical prescribing are apparent to the participants. They can see that not all patients actually need to see a doctor for every condition they have, and that the doctors workload needs prioritising so that they see the more complex cases. They can also see the benefits in terms of it using the full potential of healthcare professionals, increasing the accessibility to healthcare for the public and decreasing the pressure on doctors, which concurs with findings from Luker et al and Brooks et al about nurse prescribing from a limited formulary.<sup>115, 117</sup>

##### 5.2.3.1.2 *Controls- Knowledge, Communication and Autonomy*

There are also controls that the participants thought were necessary regardless of the type of healthcare professional that was prescribing. The healthcare professional should be very knowledgeable, and they did recognise the level of knowledge that nurses and pharmacists had. They also recognised how important training would be for individuals to take on this extended role and they wanted to ensure that individuals were very experienced as well. Patients that were interviewed by Luker et al who had experienced nurse prescribing from a limited formulary also thought that nurses that were prescribing had to be suitably trained and experienced.<sup>115</sup>

They also recognised that communication between healthcare professionals was going to be very important to avoid any errors occurring and that it was very important that the individuals could refer the patient to the appropriate professional if they needed to, and indeed knew when they needed to refer patients as well.

However, even with these controls in place, the participants had an assumption that the patients' doctor would be closely supervising the prescribing that was being done by the non-medical prescriber. It is therefore not quite clear to them that the non-medical prescriber will be autonomous and independent from the doctor, and although the doctor can certainly question the non-medical prescribers reasoning for making their decisions, they will not be closely supervising every move they make. These



findings are consistent with the findings of Berry et al<sup>118</sup> who also found a sub-section of their sample who wanted closer supervision of their medical care and either preferred to see a doctor rather than a nurse prescriber, or wanted to see a doctor at regular intervals.

#### *5.2.3.1.3 Concerns- the model and diagnosis*

The participants also had concerns about the independent prescribing model. Due to their poor understanding of the training and knowledge of pharmacists and nurses, they did not feel comfortable with them dealing with anything other than very minor ailments and conditions, which would be a waste of specialists' expertise. The level that they believe is appropriate for non-medical prescribers to work at is much less than what is expected from the professions themselves.

The participants also had doubts over the ability of the nurses and pharmacists to diagnose conditions. This stems from their beliefs that the nurses and pharmacists do not have sufficient training to do this and they have concerns over them misdiagnosing conditions. These concerns may be appropriate from members of the public who do not know the detail of the professionals' training. As long as the professional is working within their specialist area and has plenty of support, the risk of misdiagnosis would be minimal. Any prescriber is at risk of misdiagnosing conditions, so there will always be an element of risk. In order to relieve concerns that there are amongst the public about this, education and promotion is needed so that they understand the level of training non-medical prescribers undergo.

A lot of their other concerns are derived from the issue of change and acceptance of such a large change in healthcare provision. This was especially apparent for older people in the group. -Younger people also thought that older people would not like the changes. Participants coveted the traditional doctor model. Doctors have a very high status (higher than nurses and pharmacists) and are very well respected. Some people thought that the only people that would accept and use the new system were those who already had a poor service from their GP and therefore were happy to accept a "second-class" system.

#### *5.2.3.1.4 History of relationship*

For both nurses and pharmacists the importance of the history of the relationship between the healthcare professional and the patient was emphasized, however for

nurses it was discussed in terms of that relationship already being established and for pharmacists it was in terms of the relationship needing to be developed in order to promote trust.

For nurses, the participants trusted them as they had already consulted them about healthcare issues and received NHS care from them. However, for pharmacists the participants commented that they do not have this established relationship and they also thought that for community pharmacists this relationship was even further undeveloped due to potential bias that comes from also being businessmen. Therefore again, this shows that nurses already have an advantage when compared to pharmacists in the public accepting them as an independent prescribers.

#### *5.2.3.1.5 Importance of trust*

Although the participants discussed generally how important it was to trust the healthcare professional you were consulting for pharmacists there were some positive comments made to support some relationships the participants already have with their pharmacist as well as some negative comments made that they were not certain that they could trust a pharmacist independent prescriber. Therefore there was some uncertainty about trusting pharmacists whereas the issue of trust was only raised very generally by one participant discussing nurse prescribing.

Again this highlights that pharmacists still have some way to go when convincing the public of their ability to be independent prescribers.

#### *5.2.3.2 Nurses vs Pharmacists*

##### *5.2.3.2.1 Opinions of nurses as prescribers*

Nurses have a definite advantage over pharmacists when it comes to the public accepting them as prescribers. Nurses are seen as having a higher status than pharmacists, and are viewed extremely positively by the public. They are thought of as being a central figure in a persons' healthcare when compared to doctors. It was also perceived that they "guide" junior doctors in secondary care when they start their new jobs.

When participants discussed nurses being independent prescribers, their discussions seemed to be based upon how they perceived nurses and what they felt about them on a personal level. The public are very comfortable with nurses, and have a much more

established relationship with them. This relationship leads to the public trusting them. The participants had a lot of sympathy for nurses and viewed them as being a very caring and devoted profession. One participant commented when discussing the extension of prescribing rights to nurses that “it would be nice for them”. The public want them to be happier in their role and to feel that they are using their skills more extensively. This perception may be fuelled by the media portraying nurses as the underdogs, who work very hard for little reward.

This support and confidence in nurses as prescribers has also been reported by other researchers who have evaluated patients’ views of nurse prescribing from the nurse practitioners formulary and the extended formulary.<sup>115, 117- 118</sup>

Part of this comfort that the public have with nurses also stems from the perception that nurses are easier to speak to and have more time to listen to patients,<sup>303-306</sup> and it has been shown that having more time to speak to patients (i.e. longer consultation times) leads to greater patient satisfaction.<sup>307</sup> It has been noted that nurses have a particular ability to form warm and friendly relationships with patients,<sup>308</sup> even more so than with general practitioners. A qualitative study of stakeholders from one NHS trust has also identified that the close patient contact that nurses have would benefit them in relation to prescribing.<sup>23</sup>

The reasoning for their close, friendly relationship with patients has been attributed to the nurses having an “equal social footing” with the patient.<sup>309</sup> This lack of social distance between nurses and patients has been found to be highly valued by women especially.<sup>305</sup> Drury et al cite the relative status of doctors and nurses in society as the reason why some patients find it easier to relate to the nurse rather than the doctor.<sup>303</sup>

The vast majority of nurses are females (89.24% 2006-07<sup>30</sup>) and qualities that have been attributed to “femaleness” (caring, gentleness, nurturing and warmth) are attributes that patients value in a doctor.<sup>310</sup>

A qualitative evaluation of the impact of nurse prescribing in the community upon patients found that patients valued nurses for both their accessibility and approachability, which led them to discuss health issues which would not otherwise have been brought to the attention of the general practitioner.<sup>116</sup>

The participants recognised that nurses already prescribed under certain circumstances and had experienced those running clinics. Even if the nurse was not actually signing the prescriptions they recognised that they had already been going

thorough the motions. Hence the extension of the nurses' role from a practitioner who undertakes consultations, to a practitioner who consults and prescribes is not very remarkable in the eyes of a patient, as the nurse consultation is something that they are already extremely comfortable with. This is a big advantage for nurses. For pharmacists this recognition does not exist- even though supplementary prescribing has been used by a minority of pharmacists to prescribe since 2004 it has not reached the public psyche yet.

The participants understood that the role of the nurse was very much under development and hoped that they would get more job satisfaction from this extension of their prescribing rights, as it would "be nice for them". Importantly, it would appear that nurses therefore have the support of the public already, which pharmacists in community practice, do not.

#### *5.2.3.2.2 Negative opinions of nurses*

-The only negative points made about nurses were that the respondents felt they currently have a subordinate role where they are always being supervised and do not necessarily take on responsibility in their role. They also felt that the nurses had inferior drug knowledge compared to doctors and pharmacists, which has also been an issue raised by patients in the research undertaken by Berry et al<sup>118</sup> as well as the nursing profession themselves and the medical profession (discussed in more detail on page 28). However, negative comments about nurses were made infrequently compared to the many positive comments made.

#### *5.2.3.3 Opinion of pharmacists as prescribers- Intrinsic Barriers*

This expression of feeling towards nurses was not expressed by participants towards pharmacists. The participants did not seem to have such a "close" relationship with pharmacists and therefore seemed to be far more cautious and even analytical about the finer detail of how the development would work than when compared to nurses.

Pharmacists were deemed to have an inferior status to nurses and doctors, were viewed as being "non-NHS" due to their community pharmacy business ties, but were seen as having better drug knowledge than nurses. Pharmacists were viewed as being inferior to doctors in terms of their knowledge and training and their status. These

findings are corroborated by other research which has also shown the poor perception that the public have of pharmacists in the health professional hierarchy. Salter and colleagues reported of many examples where patients “call on the higher authority of the doctor” as a means to challenge the advice given by the pharmacist.<sup>311</sup>

This is a key factor in the success of pharmacist prescribing. The public need to be educated as to the knowledge that pharmacists have in order for them to trust pharmacists more. The RPSGB should produce such an educational campaign for the public in order to highlight the pharmacists’ knowledge and skills.

The low professional status of pharmacists is a view commonly held by other health professions as well. In the past, pharmacists enjoyed a high status because of their understanding of an exclusive field of knowledge, subsequently, pharmacists appeared to become overqualified for their roles and “overeducated” distributors of medicines.<sup>312</sup> However, more recently, with the role extension into more clinical activities, there will be a positive shift in the status of pharmacists once that patients recognise their more demanding role. -A minority of the participants in this research did concede that pharmacists may have the same or superior knowledge to doctors in terms of their knowledge of drugs.

The big difference between how participants felt about pharmacists and nurses becoming prescribers was that when participants discussed pharmacists as prescribers, they often discussed the barriers that were present for pharmacists.

#### *5.2.3.3.1 Physical Examination*

Some participants did not want pharmacists to undertake physical examination as part of their prescribing role and this is because pharmacists do not currently have a “hands on role” in their traditional work. This is a big change for patients to accept pharmacists physically examining them. At no point did any participants say this about nurses because nurses already physically examine patients in their current role. However, for some participants this change to a pharmacists’ role was one step too far as they have never seen pharmacists have such a “hands on” role in the past.

Again, the developing role of the pharmacist as a prescriber and as a member of the healthcare team needs to be highlighted to the public by an educational campaign by

the RPSGB. It needs to highlight that as a prescriber, the pharmacist will need to undertake physical examination when necessary.

#### *5.2.3.3.2 Image*

Pharmacists also have to fight a negative view of their image, which is not widely held, but some people do still consider them to be the person in the white coat hiding in the dispensary, popping out to sell some photos. These views stem from a lack of understanding of the pharmacists role and training they undertake. Pharmacists are not viewed as being a healthcare provider by some people. This view can be hard to dispel when it is also a view held by some general practitioners as well. An editorial in the British Medical Journal<sup>313</sup> has recently highlighted to its readers the unfavourable impact upon patient outcomes of community pharmacists' interventions in two studies that were published that week by Salter<sup>311</sup> and by Holland.<sup>314</sup> This editorial represented a rational and critical discussion of the methodology used, and suggests that the agenda for research into the impact of pharmacists on health should be refined.<sup>313</sup>

A qualitative study sought to explore the barriers between pharmacists and GPs in relation to closer interprofessional working and the extension of prescribing rights to pharmacists. This study found that the “shopkeeper” image of community pharmacy emerged as the super ordinate theme, with subthemes of access, hierarchy and awareness. The shopkeeper image and conflict between business and health care permeated the GPs discussions and accounted for their concerns regarding the extension of prescribing rights to community pharmacists and involvement in extended services.<sup>315</sup> –Therefore this opinion is also held by doctors themselves which has a huge influence upon the public as they hold doctors with such high regard. How can pharmacists redeem themselves if the doctors themselves have these views as well?

It is interesting that negative comments about the nurses' image were not made by participants. –This reinforces the high regard with which they are held by the public.

#### *5.2.3.3.3 Training*

The lack of understanding that some participants illustrated when discussing the training that pharmacists have does not help to dispel the intrinsic barriers that some people hold. Some participants recognised how important it was that the public

understood the training and qualifications that pharmacists have in order to gain their confidence and acceptance of pharmacists as prescribers. It has also been suggested in medical literature that if the Department of Health is to provide pharmacists with a more expansive role in public health in the UK, that a campaign is needed to educate the public and the medical community about the harms of inappropriate use of medication and how pharmacists can be a potential resource for patients who take medicines.<sup>313</sup>

In May 2003 “Health Which?” surveyed >1,500 people across Great Britain for their views and experiences of community pharmacy services (the methodology used is unclear in the publication).<sup>316</sup> They found that only 11% of pharmacy users surveyed had asked their pharmacist to help diagnose a medical problem or consulted a pharmacist about the need to see a doctor in the last two years. When the respondents were asked about their thoughts on supplementary prescribing, over a third was not keen on the idea. It appeared that patients regularly taking medicines were more resistant to the idea, with 41% not liking the idea at all. The reports authors suggest that this means that the Government has some way to go to convince the public that pharmacists are able to fulfil part of the role traditionally performed by GPs. Although surveys such as this may have less rigour than an academic survey, it does suggest that an educational campaign is necessary if the public are to accept prescribing by pharmacists on the high street.

The model of the pharmaceutical care practitioner<sup>317</sup> could be used as a strategy to increase the public’s exposure to pharmacists’ working in primary care, reviewing medications and in a prescribing role as opposed to the traditional dispensing role.<sup>313</sup>

As community pharmacists start to do more Medication Usage Reviews (MURs), this will also help the public start to accept the pharmacists’ role as more than just a glorified dispenser. It is however, noteworthy that none of the patients that were interviewed during this research had experienced a MUR.

It would be even more useful to the patient and the general practitioner if all community pharmacists had full access to the patients’ medical notes so that a full clinical review of medication could take place.

Although for nurses there was some comments made regarding their drug knowledge and whether it was sufficient to prescribe, (as discussed in the introduction p28) the participants did not seem to comment about their background training in a negative manner or suggest that lack of understanding of their training would form a barrier in

the implementation of nurse independent prescribing. This might be because the participants have a greater trust and familiarity with nurses in the first place and therefore their background training is not a concern to them.

#### *5.2.3.3.4 Opinion of pharmacists as prescribers- Extrinsic Barriers*

##### *5.2.3.4.1 Facilities*

Community pharmacists in particular cause great concern to the participants with regards to holding prescribing clinics within their pharmacies. Participants had concerns about the level of privacy that would be provided to them, and the participants wanted to ensure that the clinics were held in a clean, spacious “clinical environment” –like a GP surgery. Participants were dubious whether all community pharmacies could provide such surroundings. This highlights the importance of image and that if a facility does not look clean, tidy and professional the public will not use it.

The issue of community pharmacies having enough space to run prescribing clinics has been raised previously.<sup>318</sup> Community pharmacies would need to have a consulting room facility if they were going to run their clinic within the pharmacy premises, and being able to create such a facility may be one of the biggest hurdles for some community pharmacies, when you consider the costs and finding the space to do this.<sup>318</sup>

##### *5.2.3.4.2 Professionalism*

Alongside the barriers mentioned above, participants also specifically mentioned for pharmacists that both the pharmacist and their clinic needed to be professional. This was not mentioned for nurses. This suggests that the participants had not always experienced professionalism from pharmacists they had come across in the past (or their premises) and hence did not necessarily trust the profession. For nurses, the participants inferred that they had no concerns about their professionalism as they did not mention how important this was in the context of nurses at all.



Another big difference found in participants' opinions of nurses and pharmacists being independent prescribers was that participants undertook much more in depth consideration of risk management issues with pharmacists compared to nurses.

#### *5.2.3.4.3 Clinical Governance*

Although many of the issues regarding clinical governance are fairly generic in terms of recognising poor performance and monitoring, participants did have the opinion that it may be more difficult for clinical governance frameworks to flag up poor performance in community pharmacy, as the pharmacists tend to work in isolation. For comparison, in the fifth report of the Shipman Inquiry, the issue of GPs working in single-handed practices was considered, and it found that there was no good evidence that the clinical performance of single-handed GPs was inferior to that of their colleagues in group practice.<sup>319</sup> It was also found that there is a considerable body of evidence to suggest that patients like single-handed or small practices. It has been found that smaller practices were regarded as being more accessible and achieved higher levels of patient satisfaction.<sup>319</sup> There is other evidence suggesting that continuity of care leads to high levels of patient satisfaction. The Audit Commission Report entitled 'A focus on general practice in England',<sup>320</sup> confirms that continuity of care tends to be better in small practices and is valued by patients.

However, the report also outlined the disadvantages for patients stemming from a continuous one-to-one doctor/patient relationship. First, the patient may come to place unwarranted trust and confidence in the doctor. Secondly, there is a quite different type of problem that may be associated with continuity of care. This is the danger of overlooking a disease of insidious onset, where the doctor sees the patient regularly and fails to notice and take heed of gradually developing signs. Thirdly, patients who repeatedly see the same doctor and no other have no experience against which to compare their consultations. Fourth, patients do not have any 'yardstick' by which to measure the competence of their GP, if they do not see how their health and illnesses are managed by other doctors.<sup>319</sup>

Problems can also arise where the less good doctors are in single-handed practice; the lack of peer contact can mean that they are unaware that their clinical and managerial standards are slipping. Also there are issues regarding clinical governance where some activities such as review of prescribing data and significant event review can only operate effectively within a group. The numbers of single-handed practices are in

decline and reasoning for this includes poor working infrastructure, premises, management, computerisation and recruitment arrangements.<sup>319</sup>

It was concluded that although there were problems with single-handed practices, they should still be supported and encouraged. It was suggested that more should be asked of them in terms of group activity and mutual supervision.<sup>319</sup>

It could therefore be concluded that pharmacists working alone in community pharmacies should also not be discouraged from running single-handed prescribing “practices” either, but should be mindful of the problems that can arise from such practice. They should therefore develop their own links with other local prescribers to support their own practice and should invite scrutiny of their practice from an external professional to support the clinical governance process at their practice as well.

Having these processes in place will help to ease the anxieties that the public have because community pharmacy is not part of an NHS organisation with the close at hand support.

This issue of clinical governance was not brought up when discussing nurses as prescribers at all by the participants. This may indicate the higher level of trust that participants have with nurses compared to pharmacists and also the fact that the majority of nurses will run their prescribing clinics within NHS organisations.

#### *5.2.3.4.4 Importance of monitoring*

A couple of participants raised the issue of pharmacists properly monitoring the on-going care of the patient. This was raised because the public are used to seeing community pharmacists recommending products to patients without undertaking any on-going monitoring and there was some concern that this was going to be the case for pharmacist prescribing. This highlights another area where public education is necessary.

Again, this issue was not raised for nurse prescribing. This may well be because nurses running clinics already undertake on-going monitoring of patients and therefore was not a concern for participants.

#### *5.2.3.4.5 Negativity about access to medical records*

This was another issue raised that was only discussed with respect to pharmacists. One participant was concerned about pharmacists having access to more sensitive aspects of peoples’ medical history but did concede that this would not make for a

safe prescribing system. An aspect of access to records that particularly concerned some participants was access within community pharmacies due to them being viewed as “non-NHS” with non-NHS staff that may not be held to the same data protection regulations. It is recognised that the issue of who should have access to highly sensitive information such as medical notes is of great concern to the public.<sup>316</sup> There have been high-profile leaks of sensitive information recently (e.g. Two compact disks containing personal details of 25 million people were lost by Her Majesty Revenue and Customs in October 2007<sup>321</sup>), and therefore the public are very sceptical of how secure sensitive information on computer systems is. This level of scepticism has possibly been exacerbated by excessive media reporting. However, this will be a crucial factor in getting the public to use pharmacists for more general medical care and advice.

There were also concerns over the IT capability to run such a system at the moment. Again this was not an issue for participants discussing nurse prescribing as nurses already have access to patients’ medical records and therefore already have a track record for maintaining confidentiality. Also nurses do not commonly run clinics in non NHS premises either so it is not considered to be an issue for nurses.

#### *5.2.3.4.6 Ethics*

Patients also questioned whether pharmacists had some kind of ethical “contract” that they were bound to like doctors. They did not know whether pharmacists had to conform to some kind of Hippocratic Oath as doctors do. This issue arose as the participant was concerned about his medical data being kept confidential by prescribing pharmacists. This again illustrates the lack of trust and lack of understanding that the participants had with regards to pharmacists prescribing as this issue did not arise with nurses. It also highlights the possible misunderstanding that the public have about what ethics are (as the respondent seemed more focused upon confidentiality issues as opposed to ethical issues) and hence another area where public education is necessary.

#### *5.2.3.4.7 Safety Concerns*

This was the only factor where safety was also mentioned in discussions about nurse prescribing as well. This is because maintenance of patient safety is paramount. One participant generally mentioned that anyone prescribing has to do so with care.

For pharmacists the participants had concerns about the pharmacists prescribing the right drug for the patient especially for more serious conditions and also about them having access to all the necessary information about the patient in order to prescribe safely.

The participants also recognised that some safety concerns were applicable to any healthcare professional that was prescribing and that with experience the risk would be reduced.

Therefore there are still a few concerns held by participants about the safety of the system specifically for pharmacist prescribers, which stems from a lack of trust in pharmacists abilities.

#### *5.2.3.4.8 Importance of patient experience*

One participant mentioned that the first consultation was extremely important in helping them decide whether they would continue to use the service. This was not mentioned for nurses and perhaps reflects that the participants are much more cautious about pharmacists being independent prescribers.

#### *5.2.3.4.9 Positive aspects for pharmacists*

For pharmacists, the accessibility of their community shops and hours they are open was seen as a big positive for pharmacists. Also, they valued the traditional role of the pharmacist. So there are good foundations for developing the role of the pharmacist.

Some participants felt that pharmacists were capable of diagnosis, supported by appropriate training. This is interesting as the participants did not specifically state this about nurses. It might be that because the participants already trust nurses in a prescribing role they did not feel the need to have to specifically state that nurses are capable of diagnosis.

Another benefit of community pharmacies not being linked to GP surgeries was that for some people, they felt empowered to look after their own healthcare and make their own decisions about who they see and when. At the moment the vast majority of nurse prescribing will be closely linked to GP practices or hospitals and there may not be many openings for nurse-run clinics to function within community pharmacies or supermarkets for instance. So this may be an advantage that community pharmacists have over nurses in some participants' opinions.

These points highlight that the participants do not have confidence in the extension of this role (and even less confidence in community pharmacists in particular) to pharmacists and do not accept this role either. –They have lots of unanswered questions on how it will work in practice which they do not have with pharmacists or nurses that run their clinics within GP practices or hospitals. This highlights that this is a very big change in healthcare provision and the public do not necessarily have the trust or confidence in the pharmacy profession to support such a change.

The only barrier that was raised to do with nurses was that for some, more conservative people, they did not accept or support nurse independent prescribing as they would still prefer to see their GP. There will always be a certain minority of people who prefer the status quo and do not wish to change systems etc. so this kind of comment is of no surprise.

#### 5.2.3.5 Pharmacist Supplementary Prescribing (SP)

No negative comments were made about SP by those who had experienced it. For some participants the experience had enforced the view that pharmacists were capable of being independent prescribers and for others it had no affect on their opinion as they believed healthcare was headed in this direction anyway, or they were happy with the idea of pharmacist being independent prescribers anyway.

Although for some, consulting a pharmacist prescriber was a novelty and a bit of a surprise, as the clinics were all held in NHS premises (a hospital or a GP surgery) the clinics were accepted because the organisation they were being held within obviously accepted them. So because of this, some participants felt that the experience of seeing a pharmacist SP did not have any impact as the consultation itself was no different to what they have experienced with doctors or nurses. This shows that in the future, once non-medical prescribing becomes established there may be a blurring of roles between the pharmacist, nurse and doctor in patients' eyes and it may be difficult for them to understand the differences between them.

The participants had no concerns that they were not seeing a doctor and indeed one participant actually saw it as a positive sign as it meant his illness was “run of the mill” and did not need to be seen by a doctor. This is probably peculiar to more serious, life-threatening diseases (this participant had gastrointestinal cancer) but is a

patient benefit that would not be necessarily thought of by the professionals running the clinics.

There were many positive comments about the SP clinics that participants had attended. They recognised that the SP themselves were specialist in the area that they were prescribing in and that they had an expert knowledge in the clinical area. They also appreciated that they were being monitored by the SP and valued the consistency of seeing the same prescriber each time for that particular problem. They felt that the service provided was more in depth and informative compared to what they would have normally received which concurs with research on a single pharmacist supplementary prescribing clinic undertaken by Smalley and the qualitative evaluation of supplementary prescribing.<sup>213, 220</sup> Participants also acknowledged that the SP provided a support for them in their on-going illness.

They also felt that they had more of a concordant consultation with the SP than they did with the doctor and hence felt more empowered in looking after their own healthcare. Smalley also found that patients at her supplementary prescribing clinic reported that they felt more involved in making decisions regarding their treatment since attending their clinic.<sup>220</sup> This finding was also consistent with interviews held with patients as part of a qualitative evaluation of supplementary prescribing.<sup>213</sup> An increase in patient involvement in their own healthcare is something that patient groups will welcome.

Participants also recognised that it increased accessibility to healthcare and decreased pressure on doctors, which has also been reported by Weiss et al in patient interviews about pharmacist supplementary prescribing.<sup>213</sup>

The participants stated that certain controls were however necessary. They stated that they expected the SP to be professional, they had concerns as to whether they would get consistent quality in the consultations if they saw a different pharmacist SP. They stated how important the training was, and that the SP was clearly responsible for their decisions.

There was some mixed opinion over how autonomous the SP should be, with some wanting more close supervision of their practice than others, and some still thought that the doctor ought to do the initial diagnosis when it comes to independent prescribing. This opinion has also been voiced in a qualitative research study of the opinions of GP mentors and pharmacists who were about to start a supplementary

prescribing course. Both groups expressed concern about further extension of prescribing rights, particularly in relation to the role of pharmacists in diagnosis and independent prescribing decision making.<sup>322</sup> Lack of adequate training, uncertainty over diagnosis and decision making and excessive responsibility were seen as barriers to the involvement of pharmacists in independent prescribing.<sup>322</sup>

#### *5.2.3.5.1 Affect of SP experience on opinions of pharmacists ability to be independent prescribers*

The participants that had not experienced SP brought up more often intrinsic barriers to pharmacists prescribing independently such as the issue of change and acceptance of the new development, negative pharmacist image and coveting the traditional doctor model. For those who had experienced SP, they were more aware of the importance of the on-going monitoring of the patient, so raised issues regarding that. This may be because this group had more insight to consultations with non-medical practitioners and had already considered “how is my on-going care going to be monitored?”

Those participants who had consulted a pharmacist SP saw themselves as being more open to these new developments and willing to embrace change. It would appear that experience of consulting a pharmacist as a prescriber positively affects their opinion of pharmacists generally.

For nurse prescribing, those who had not experienced SP were much more positive about nurses as prescribers, mentioning the benefits of the development, how knowledgeable nurses are, that they already prescribe and already have established relationships with nurses. Those who had experienced SP were much less vocal regarding positive factors about nurses as prescribers. It is possible that as nurses tend to be more closely associated with healthcare provision than pharmacists and are traditionally seen as a more caring and devoted profession participants who had not experienced pharmacist as prescribers were more comfortable with the idea of nurses prescribing for them and hence were much more vocal and positive about it. There was much more recognition of the nurse having a role that is currently more identifiable with that of a doctor, and hence the extension of this role to include prescribing is not such a big change for the participants to accept. Hence the

participants who had no experience of pharmacists as prescribers were much keener and hence vocal about the experience that nurses already had with regards to prescribing.

When discussing the history of their relationship with nurses, the group of participants that had seen a pharmacist supplementary prescriber were less concerned with personal previous experiences and how this informs their opinions and instead were more focused upon the practicalities of prescribing and ensuring that the professional involved was capable.

Therefore it would appear that SP prepares the patients for pharmacists to take on an extended prescribing role. It is an unthreatening introduction to pharmacists taking responsibility for their prescribing. It would also appear that it positively affects their opinions of pharmacists' ability to be prescribers as well. However, these opinions are based upon a participants' individual experience of seeing a single SP and whether that individual experience is transferable to other pharmacist prescribers is unclear.

Overall, it is apparent from the results that pharmacists, especially those setting up prescribing clinics within community pharmacies, have many more barriers to deal with before the public will readily accept and use their prescribing services.

Pharmacists also have a more difficult challenge in gaining public confidence in their prescribing skills when compared to nurses as well. This is because the public do not visualise pharmacists as healthcare providers at the moment. They also do not understand their therapeutic value and the knowledge and skills that they have.

#### *5.2.3.5.2 Differences between participants that had GI cancer and Hypertension*

Participants with GI cancers may not have considered the nurses' level of knowledge in their traditional role as much as they are becoming more familiar with nurses working in more specialist areas.

The group of participants with GI cancer may be better educated about the healthcare system as it might be that if you are faced with a potentially life-threatening condition, you may do your own research about your condition and who you would expect to treat you etc. It might also be that patients with GI cancer are exposed to nurses that are working at a much "higher level" more frequently. For example they



may see nurses working at consultant level and may spend more time with nurses in the day therapy centre if they receive intra-venous chemotherapy. Therefore they may have a better insight to the high level that nurses work at and therefore are less concerned about them being closely supervised by doctors.

Generally, patients who have GI cancer may be more appreciative of pharmacists that they have come across in that specialist area than compared to those who have seen pharmacist prescribers for hypertension. This is because they may believe that cancer is a much more complex clinical area than hypertension. Therefore they may have been less interested in commenting on pharmacists' knowledge in their traditional dispensing role.

### 5.3 The aims reviewed

In sections 2.7.9, 2.7.11 and 2.7.13 the aims and objectives were outlined for this research. These aims are now reviewed.

The aim for phase one of the research was as follows:

*To establish the prevalence of pharmacist “prescribing activities” within secondary care in the UK, & to describe in detail the provision of pharmacist discharge prescription transcription services (PDPTS).*

The findings of the research were as follows:

- The questionnaire survey that was undertaken established that in 2001, PDPTS was being provided by 36% (n=49/135) of hospital pharmacy departments that responded, and this was the most common form of prescribing activity being undertaken.
- The most common model being used to provide PDPTS involved pharmacists transcribing for their own wards (78%, n=38/49).
- The number of pharmacists transcribing discharge prescriptions per hospital ranged from 1 to 89. (Mean=8, Mode=2, Median= 5, 25% percentile= 2, 75% percentile=10).
- The majority of pharmacists wrote less than 5 prescriptions per day (n=25, 52%), (n=17, 35%) wrote 5-10 prescriptions per day.
- The most common training requirement for pharmacists to start transcribing was an in-house training programme (n=27, 55%).
- The majority of (pharmacy) departments do not re-assess the ability of their pharmacists to transcribe (n=37, 80%).
- The majority of pharmacy departments required a medical practitioner to counter-sign the pharmacist written prescription (65%, n=31, 1=missing data) and had a formal protocol for their PDPTS (57%, n=27, 2=missing data).
- The most common reasons *for* implementing PDPTS was to reduce delays in the discharge process (73% n=35), and decreased errors (50% n=24).

- Amongst pharmacy departments not providing PDPTS, the main reasons given for not developing PDPTS were insufficient resources (60% n=18), and preferentially developing other services (23% n=7).

The aim was met in terms of describing the services being provided, and showed that PDPTS services were not being run extensively throughout those hospitals that were providing such services and were having minimal impact. Principles of clinical governance were also not being met in terms of training provision and re-assessment of pharmacists undertaking the service.

The aim for phase two of the research was as follows:

***To investigate the views of chief pharmacists within secondary care and pharmaceutical advisors of primary care trusts in England upon the implementation, risks & issues surrounding supplementary prescribing.***

The findings of the research were as follows:

- The questionnaire survey that was undertaken established that both sectors intended to implement supplementary prescribing by pharmacists by the end of 2005 (57%, n=55 and 56%, n=100 respectively).
- The majority of the chief pharmacists did not believe that it would be more difficult to recruit designated medical practitioners (DMPs) to supervise supplementary prescribing training for pharmacists as opposed to nurses (67%, n=43), whereas the largest group of primary care trust pharmacists did think this would be the case (47%, n=86).
- Within secondary care, the clinical areas in which pharmacists were intending to work as supplementary prescribers were those where they already had established roles.
- Within primary care, the main clinical areas for pharmacists were influenced by those areas in the new General Medical Services (GMS) Quality and Outcomes Framework (QUOF) for general practitioners (GPs).
- For both sectors, the three factors that were extracted described concerns over the training model for supplementary prescribing, concerns about the

professional competency/responsibility of the supplementary prescribers once trained, and positivity about the implementation of supplementary prescribing.

- For both sectors, as trusts have more experience of supplementary prescribing by nurses, the respondents had less concerns about the supplementary prescribing training model.
- For secondary care, as the total number of pharmacists employed within the Trust increases, the respondents had less concerns over the limitations of the supplementary prescribing training model.

The aim of this research study was met as chief pharmacists and primary care trust pharmacists' views upon SP were established by the survey results. It was also discovered that there were many more barriers to the establishment of supplementary prescribing within primary care than secondary care. The SP model is being used to legitimize non-medical prescribing within secondary care, but within primary care is being used to develop clinics as targeted by the GPs' QUOF.

The aim for phase three of the research was as follows:

***To investigate opinions of patients who have and have not experienced supplementary prescribing by pharmacists on the development of pharmacists and nurses as independent prescribers.***

The findings of the research were as follows:

- Participants shared common views upon the benefits of Independent Prescribing (IP) and necessary controls when providing such a service regardless of the type of professional.
- They also had common concerns about IP, which included doubting their ability to deal with more than minor conditions and their diagnostic skills. Concerns were based upon issues of change and acceptance where some participants coveted the traditional doctor model which resulted in them considering the IP service inferior.

- Nurse prescribing was more acceptable than pharmacist prescribing because nurses were considered to be trustworthy, caring and a devoted profession who are the central figure in an individuals' healthcare, with which relationships are established.
- Community pharmacists were perceived by some participants as being “non-NHS”, not being a healthcare provider and as having a negative image. Practically, participants doubted the privacy of community pharmacies, whether they had the necessary space to provide a professional IP service and had clinical governance concerns. However, participants did acknowledge the expert drug knowledge that pharmacists have and their accessibility.
- Participants that had experienced pharmacist SP were positive about the experience and it enforced views that pharmacists would be capable as IPs. Patients felt empowered due to increased concordance compared with doctor consultations. They also viewed SP pharmacists as being specialists compared to community pharmacists.
- Participants that had not experienced SP tended to have more intrinsic barriers towards IP.

The aim was met in terms of establishing views of patients upon pharmacists and nurses as independent prescribers, but due to saturation not being reached for the patient group who had experienced supplementary prescribing by pharmacists, the impact of this experience upon their opinions of pharmacists as independent prescribers is less clear.

The study results also highlight the extra barriers that community pharmacists have with respect to the public accepting pharmacists as independent prescribers. The public do not currently visualise pharmacists as healthcare providers and do not understand the knowledge and skills that they have.

## CHAPTER 6: CONCLUSION

In 2001, 36% (49/135) of pharmacy departments had developed a pharmacist discharge prescription service. However, the services being offered tended to be rather ad-hoc and only available in certain wards or single directorates. Training and competency assessment of this pharmacist role appeared to not meet the requirements of clinical governance. Interpretation of requirements for medical authorisation of pharmacist-written prescriptions was variable. Furthermore, a substantial number of hospitals with a PDPTS had no formal protocol for the service.

Literature supports the valuable patient benefits of such a service in terms of reduced waiting time for medicines on discharge,<sup>99,75,74,70</sup> reduced error rates<sup>49,9,72,74</sup>, and the service also falls into line with the requirements of the Audit Commission report.<sup>49</sup>

In order to extend this valuable service throughout hospitals, a workable legal model for this service needs to be established alongside funding, resources and skill-mix maximisation. The introduction of independent prescribing is the only legal model which will allow for this type of prescribing, but pharmacists would be somewhat over-qualified if this was the only type of prescribing that they undertook. Therefore a better use of resources would be for qualified independently prescribing pharmacists to not only prescribe discharge prescriptions in hospitals but also to run clinics in their chosen specialist areas and attend ward rounds in their area(s) as well. Alternatively, a separate qualification could be designed to allow pharmacists to write discharge prescriptions alone. This could be viewed as a “training” stage for pharmacists in secondary care, before they start to develop their own specialist clinics. This will enable patients to gain the maximum benefit from this development in secondary care.

Although the intentions of CPs and PCTPs were very similar in terms of implementation of supplementary prescribing, the results illustrate that there are significantly more barriers to its establishment within primary care, than secondary care settings.

Within primary care, supplementary prescribing appears to be implemented in order to develop new services. However, within secondary care, the results suggest that the model is being used more often to legitimize services that are already being provided.

Nurse supplementary prescribing is taking longer to establish within secondary care, as this sector has less experience of nurse prescribing and because the current models of non-medical prescribing are less suited to the acute care environment in hospital.

It would appear that although the Department of Health may feel that the training model and patient safeguards that have been put into place for supplementary prescribing are sufficient, there are still concerns within both primary and secondary care about the supplementary prescribing model (such as the lack of clinical assessment during training), professional competence and responsibility once trainees qualify. It is apparent that in order for supplementary prescribing to be a safe system for patients, pharmacists will have a central role in the development process in terms of risk management and the safe use of medicines. The Department of Health may need to provide more support for this role, showcase examples of good practice, and support research into the role in order to provide an evidence-base that supplementary prescribing is providing patients with at least an equivalent service to doctors, and is also increasing access to healthcare for patients, without compromising safety.

Pharmacists also need more support in terms of infrastructure and integration into the healthcare team as it was apparent that there were many practical issues that needed to be overcome before SP could be implemented successfully. Although CPs and PCTPs have these concerns, overall there was a positive attitude towards supplementary prescribing and there was a belief that pharmacists wished to take this role on.

Since this research was undertaken, it has become apparent that supplementary prescribing is not being taken up by pharmacists as much as was originally expected. The issues with the SP model being difficult to use as well as not being suitable for acute conditions has meant that in practice it is not very user-friendly. In practice, the independent prescribing model may be much more useful for both secondary care and community pharmacists working in isolation. In the future, supplementary prescribing may be viewed as a “training stage” for non-medical healthcare professionals to develop their prescribing and consultation skills with closer supervision before becoming independent prescribers. In secondary care, the writing of discharge prescriptions could also be used as a “training stage” in the development of the pharmacist as an independent prescriber.

With regards to the introduction of independent prescribing, the public are aware of the benefits of the introduction of this service and the nursing profession have support from the public for this role as they already have an established relationship with them, they trust them and because they have a good position in the hierarchical status of healthcare professionals.

For pharmacists, this support from the public still needs to be developed. The public do not necessarily trust the profession, nor think of them as being members of the healthcare team. This is partly derived from them not being part of the NHS (apart from their contract) and also being businesses. The public are far more accepting of pharmacist as prescribers when they are employed by hospitals or work within GP practices.

Community pharmacists in particular are suffering from image problems and the remedy for this is an extensive educational programme for the public in order to teach them about the training and knowledge that pharmacists have, the professionalism of the profession, the code of ethics that pharmacists are bound to, the rigorous clinical governance procedures that they have to adhere to and the assurance that their condition will be appropriately monitored by pharmacist prescribers. Public promotion of pharmacists' skills will be essential to gain public confidence in IP.

Alongside this, money needs to be invested into community pharmacies to help them provide appropriate clinic room facilities within their pharmacies.

The other main hurdle is access to medical records. If independent prescribing is going to be extensively used by community pharmacies in order to provide minor ailment services as well as more specialist services, then access to a patients' medical records is essential. Security of highly sensitive information such as this will be paramount if the public are to agree to community pharmacists having access to their records. This may well represent the main stumbling block preventing extensive use of extended prescribing within community pharmacy.

Community pharmacy also needs to emphasize the recognised benefits that such a role would bring to the public and to healthcare commissioners, such as the accessibility of community pharmacies and that this development leads to the empowerment of patient choice in healthcare.



The evaluation of supplementary prescribing by pharmacists has shown that patients benefit in terms of receiving more information, having longer consultations, having a more concordant consultation and increased accessibility to healthcare. Patients that see a pharmacist supplementary prescriber also are more positive about non-medical prescribing and have less intrinsic barriers towards independent prescribing. Therefore good examples of supplementary prescribing could be used to facilitate public acceptance of independent prescribing.

## CHAPTER 7: RECOMMENDATIONS

From the results of this research, it is clear that there are several recommendations that can be made:

- Central guidance from the Department of Health and tailored provision of training and assessment from higher education institutions should be provided for the specific role of pharmacists writing discharge prescriptions, as per the supplementary and independent prescribing models.
- The Department of Health could suggest target areas within the QUOF where the role development of non-medical prescribers is more urgent (in terms of patient needs) than others in order to encourage GPs and PCTs to develop and utilize non-medical prescribing. This would help to support community pharmacists in particular who are finding it more difficult to develop non-medical prescribing.
- Doubts regarding pharmacists' abilities to diagnose need addressing through education and promotional activities if independent prescribing is going to be fully utilised by the public. It also needs to be highlighted that patients under the care of a pharmacist prescriber for certain conditions will be closely and regularly monitored by that prescriber. Also this new development itself needs promoting to the public alongside the level of training and knowledge that pharmacist and nurse prescribers receive. Some of this promotion should be specifically targeted at older people to improve their acceptability of the role extension.
- Communication and teamwork between different healthcare professionals is extremely important to maintain patient safety. It is therefore important that the new extension of prescribing is promoted to doctors so that they are aware of the development and include such prescribers in their network.
- Primary Care Trusts could help provide a support network for prescribing pharmacists, in terms of helping new prescribers get into contact with established pharmacist prescribers, to help with CPD and clinical governance requirements. Examples of good practice should be highlighted to other pharmacist prescribers within PCTs and nationally via e-mail newsletters.

- The image of pharmacists, especially community pharmacists needs to be improved. A publicity campaign highlighting good examples of pharmacists' practice and of community pharmacies with very high quality clinical facilities needs to be undertaken by the RPSGB. This should also emphasize the professionalism of pharmacists. It should also be highlighted that pharmacists who own their own business will not let business needs influence their practice and that all pharmacists are bound by a code of ethics to prevent this happening.
- Clinical governance arrangements in particular need highlighting to the public especially with regards to prescribing clinics being held in community pharmacies.

## 7.1 Further research

Even though pharmacists writing discharge prescriptions is becoming more widespread,<sup>323</sup> it is possible that as the pharmacist becomes accustomed to this daily task, they may become less effective and make more mistakes if they are busy and being interrupted. Hence a longer-term study ought to be undertaken to establish whether the accuracy of the prescription that is written decreases over time. The pharmacist-written prescriptions ought to be compared to that written by doctors in order to provide evidence of which professional would be the safest to write discharge prescriptions for patients over a prolonged period of time.

The different models of non-medical prescribing have been brought in without being based upon evidence from controlled studies. It is therefore apparent that evidence now needs to be sought in order to prove that this type of prescribing is at least as safe for patients as the normal care given by doctors. Therefore a clinical study would need to be undertaken to measure clinical outcomes, mortality and morbidity, quality of life, hospital readmission rates, number of prescribing errors and patient satisfaction. Alongside this, an economic study needs to be undertaken in order to investigate the cost/benefit ratio of providing such services versus standard doctor services.

The study would need to be a multi-centre trial which could also assess the impact of this service development upon the pharmacy department, in terms of staffing and efficiency in order to enable hospitals that are not currently offering pharmacist-prescribing services to introduce the optimum service model.

Also, it needs to be established whether the introduction of non-medical prescribing is actually increasing accessibility to healthcare for patients, by comparing appointment times for patients under standard doctor care versus non-medical prescriber care.

Qualitative work needs to be undertaken in order to establish whether patients are satisfied with the treatment they receive from non-medical prescribers, and how it compares to “traditional” care.

Qualitative interviews with doctors would also be useful in order to establish their opinions of non-medical prescribing in practice and whether their role would change when non-medical prescribing becomes more wide-spread.

The other element of non-medical prescribing that needs to be investigated is whether the service being provided by nurses and pharmacists is equivalent in terms of providing a minimum level of patient care and safety which is at least equivalent to that provided by the traditional doctor model. Also an economic study should be undertaken to again look at the cost/benefit ratios of nurse versus pharmacist clinics. This type of study is necessary because the average pharmacist costs per hour more than the average nurse. The pharmacy profession can suggest that our more expensive services are more suitable for clinics in clinical conditions where polypharmacy exists and that nurses skills are better tailored at clinics where prescribing for a single clinical condition closely follows guidelines. Evidence is needed to prove that this is the case if GP practices are going to pay more for a pharmacists' services.

## REFERENCES

1. Building the future: a strategy for a 21st century pharmaceutical service. London: Royal Pharmaceutical Society of Great Britain, 1997:15.
2. Edmunds J, Calnan MW. The reprofessionalisation of community pharmacy? An exploration of attitudes to extended roles for community pharmacists amongst pharmacists and general practitioners in the United Kingdom. *Social Science & Medicine* 2001;53:943-55.
3. The NHS Plan: a plan for investment, a plan for reform, 2000.
4. Baird A. Nurse prescribing -how did we get here? *Journal of Clinical Nursing* 2003;17(4):1-10.
5. Beecham L. BMA warns Liberal Democrats about shortage of doctors. *British Medical Journal* 1996;313:886.
6. Hay A, Bradley E, Nolan P. Supplementary nurse prescribing. *Nursing Standard* 2004;18(41):33-39.
7. Dowling S, Barrett S, West R. With nurse practitioners, who needs house officers? *British Medical Journal* 1995;311:309-313.
8. Junior Doctors. The new deal. London: NHS Management Executive, 1991.
9. Nurse Prescribers' formulary for District Nurses and Health Visitors. In: Mehta D, editor. *British National Formulary*. London: BMA & RPSGB, 2005:843-851.
10. Blenkinsopp A, Tann J, Evans A, Grime J. Opportunity or threat? General practitioner perceptions of pharmacist prescribing. *International Journal of Pharmacy Practice* 2008;16:29-34.
11. Review of prescribing, supply and administration of medicines, final report: Department of Health, 1999.
12. Supplementary prescribing by nurses, pharmacists, chiropodists/podiatrists, physiotherapists and radiographers within the NHS in England.: Department of Health, 2005.
13. Supplementary prescribing extended to optometrists. *The Pharmaceutical Journal* 2005;275(7357):37.
14. Beecham L. BMA criticises report on prescribing. *British Medical Journal* 1999;318:1768.
15. Proposals for supplementary prescribing by nurses and pharmacists and proposed amendments to the prescription only medicines (human use) order 1997. London: MCA, 2002:1-19.
16. Horton R. Nurse-prescribing in the UK: right but also wrong. *The Lancet* 2002;359:1875-6.
17. Anon. Training doubts for nurse prescribing. *BMA News*. 3 ed, 2002.
18. Chen-Scarabelli C. Nurse prescribing in the UK. *The Lancet* 2002;360:1607-8.
19. Day M. UK doctors protest at extension to nurses' prescribing powers. *British Medical Journal* 2005;331:1159.
20. Avery AJ, Pringle M. Extended prescribing by UK nurses and pharmacists. *British Medical Journal* 2005;331:1154-1155.
21. Richmond S. Triumph of common sense. *British Medical Journal* 2005;331:1337.
22. Shaw A, de Lusignan S, Rowlands G. Do primary care professionals work as a team: a qualitative study. *Journal of Interprofessional Care* 2005;19(4):396-405.
23. Buckley P, Grime J, Blenkinsopp A. Inter and intra professional perspectives on non-medical prescribing in an NHS trust. *The Pharmaceutical Journal* 2006;277:394-398.

24. DTB raises concerns about pharmacist prescribing. *The Pharmaceutical Journal* 2006;276:557.
25. Latter S, Courtenay M. Effectiveness of nurse prescribing: a review of the literature. *Journal of Clinical Nursing* 2004;13:26-32.
26. Bradley E, Blackshaw C, Nolan P. Nurse lecturers' observations on aspects of nurse prescribing training. *Nurse Education Today* 2006;26(7):538-44.
27. While A, Biggs KS. Benefits and challenges of nurse prescribing. *Journal of Advanced Nursing* 2004;45(6):559-567.
28. King RL. Nurses perceptions of their pharmacology educational needs. *Journal of Advanced Nursing* 2004;45(4):392-400.
29. Aronson J, Henderson G, Webb D, Rawlins M. A prescription for better prescribing. *British Medical Journal* 2006;333:459-60.
30. The nursing and midwifery council statistical analysis of the register 1 April 2006 to 31 March 2007: Nursing and Midwifery Council, 2007:13.
31. Register Statistics: The Royal Pharmaceutical Society of Great Britain, 2008.
32. Wider prescribing powers proposed: NHS update, 2002.
33. Health Professionals Council Statistics, 2007.
34. HSC 1998/051: Report on the supply and administration of medicines under group protocols review of prescribing, supply and administration of medicines. London: Department of Health, 1998:5.
35. HSC 2000/026: Patient group directions [England only]. London: Department of Health, 2000:4.
36. DHSS. Neighbourhood nursing- a focus for care. Report of the community nursing review. Cumberlege Report. London: HMSO, 1986.
37. Report of the advisory group on nurse prescribing (Crown Report). London: Department of Health, 1989.
38. Medicinal Products; Prescription by Nurses etc Act (Commencement No 1) Order. London: DHSS, 1994.
39. Making a Difference: strengthening the nursing, midwifery and health visiting contribution to health and healthcare. In: HMSO, editor. London: Department of Health, 1999:82.
40. The National Plan. London: Department of Health, 2000.
41. Extended prescribing of prescription only medicines by independent nurse prescribers. London: Department of Health, 2001.
42. Extending independent nurse prescribing within the NHS in England: a guide for implementation. London: Department of Health, 2004:46.
43. Granby T. Lessons learnt from the nurse prescribing experience. *The Pharmaceutical Journal* 2003;270:24.
44. Nurse prescribers extended formulary: proposals to extend range of prescription only medicines - consultation. London: Department of Health, 2003:13.
45. Nurse and pharmacist prescribing powers extended: Department of Health, 2005.
46. Pharmacy in the Future- Implementing the NHS plan, 2000.
47. Health & Social Care Act, 2001:6-8.
48. Supplementary prescribing by nurses and pharmacists within the NHS in England -a guide for implementation. London: Department of health, 2003.
49. A spoonful of sugar -Medicines management in NHS hospitals: Audit Commission, 2001.
50. The Right Medicine: A strategy for pharmaceutical care in Scotland.: Scottish Executive, 2002:1-38.

51. Root G. Supplementary prescribing-a groundbreaking opportunity. *The Pharmaceutical Journal* 2003;270:19-20.
52. Group PPT. Supplementary prescribing by pharmacists. London: Royal Pharmaceutical Society of Great Britain, 2002:1-42.
53. Outcome of the consultation exercise on proposals for supplementary prescribing by nurses and pharmacists. London: DoH, 2002.
54. Outline curriculum for training programmes to prepare pharmacist supplementary prescribers. London: Royal Pharmaceutical Society of Great Britain, 2002:1-7.
55. Consultation on proposals to introduce independent prescribing by pharmacists (MLX 321). London: Medicines and Healthcare products Regulatory Agency, 2005:1-69.
56. Independent Prescribing of Controlled Drugs by Nurse and Pharmacist Independent Prescribers (Consultation on) MLX338: Home Office Department of Health Advisory Council on the Misuse of Drugs (ACMD), 2007.
57. Improving patient's access to medicines: A Guide to Implementing Nurse and Pharmacist Independent Prescribing within the NHS in England. London: Department of Health, 2006:73.
58. Curriculum for the Education and Training of Pharmacist Supplementary Prescribers to become Independent Prescribers. London: Royal Pharmaceutical Society of Great Britain, 2006:4.
59. Dean B. What is clinical governance? *Pharmacy in Practice* 2000:182-184.
60. A first class service: Quality in the new NHS. London: Department of Health, 1998:86.
61. Dewsbury C. Making sense of clinical governance. *The Pharmaceutical Journal: The Pharmaceutical Journal*, 2001.
62. Achieving excellence in pharmacy through clinical governance. London: Royal Pharmaceutical Society of Great Britain, 1999:1-16.
63. Building a safer NHS for patients. London: Department of Health, 2001.
64. Taheny K, Tyrell A, Cairns C, Bunn R. Influence of patient focused care on managing medicines for discharge. *The Pharmaceutical Journal* 1999;262:368-371.
65. Leech D. Patient directed pharmacy services- do they benefit their patients? *Hospital Pharmacist* 2000;7:263-264.
66. Leech D. New roles for pharmacy technicians at the William Harvey Hospital. *Hospital Pharmacist* 2000;7:30-32.
67. Sexton J, Ho YJ, Green CF, Caldwell NA. Ensuring seamless care at hospital discharge: a national survey. *Journal of Clinical Pharmacy and Therapeutics* 2000;25:385-393.
68. Study to assess feasibility of pharmacists writing discharge prescriptions for patients on the medical wards. UKCPA residential symposium autumn; 1996.
69. The pharmaceutical impact of a pharmacist-led discharge prescription service on a surgical ward. UKCPA Autumn symposium; 1997; Blackpool. Pharmacy World & Science.
70. Milliken B, Rea Y. A clinical pharmacist's contribution to discharge planning and patient counselling. *The Pharmaceutical Journal* 1997;258:777-778.
71. Feil RA, Jones WN. The impact of pharmacist-initiated discharge prescription writing on adverse drug reactions and medical centre drug costs. *Pharmacotherapy* 1999;19(4):509.



72. Boorman S, Cairns C. Another way forward for pharmaceutical care: a team-based clinical pharmacy service. *The Pharmaceutical Journal* 2000;264:343-346.
73. Writing discharge prescriptions: A novel training programme for hospital pharmacists. UKCPA Progress in Practice Symposium; 2001 May 19th, 2001; Leeds, UK.
74. Jacklin A, Patel K, Almossawi O. A discharge pharmacist service improves the timeliness, quality and cost of discharge. *Pharmacy in Practice* 2001;11(April 2001):100-102.
75. Cattell R, Conroy C, Sheikh A. Pharmacist intergration into the discharge process: a qualitative and quantitative impact assessment. *The International Journal of Pharmacy Practice* 2001;9:59-64.
76. Lord S. The interface- Steps towards seamless care. *Hospital Pharmacist* 1999;6:83-84.
77. Hebron B, Jay C. Pharmaceutical care for patients undergoing elective ENT surgery. *The Pharmaceutical Journal* 1998;260:65-66.
78. Hick H, Deady PE, Wright D, Silcock J. The impact of the pharmacist on an elective general surgery pre-admission clinic. *Pharmacy World and Science* 2001;23(2):65-69.
79. The impact of a unit-based pharmacist for gynaecology. UKCPA Autumn Symposium; 1997; Blackpool. Pharmacy World & Science.
80. Shah R. Medicines management. *The Pharmaceutical Journal* 1997;259:26.
81. Lott J. Pharmacist clerking. *The Pharmaceutical Journal* 1997;259:26.
82. Smith H. Pharmacist involvement in a surgical preadmission clinic improves the quality of patient care. *The Pharmaceutical Journal* 1997;259:902.
83. Hughes EC, John NR, Swithenbank PJ. Setting up and evaluating a pharmacist-led outpatient DVT clinic. *The Pharmaceutical Journal* 1999;263:R66-67.
84. Parekh R, Ghee C. Evaluation of a pharmacist controlled anticoagulant clinic. *British Journal of Pharmaceutical Practice* 1987;9(10):370-81.
85. Holden J, Holden K. Comparative effectiveness of general practitioner versus pharmacist dosing of patients requiring anticoagulation in the community. *Journal of Clinical Pharmacy and Therapeutics* 2000;25:49-54.
86. Radley AS, Hall J, Farrow M, Carey PJ. Evaluation of anticoagulant control in a pharmacist operated anticoagulant clinic. *Journal of Clinical Pathology* 1995;48:545-7.
87. Macgregor SH, Hamley JG, Dunbar JA, Dodd TR, Cromarty JA. Evaluation of a primary care anticoagulant clinic managed by a pharmacist. *British Medical Journal* 1996;312(7030):560.
88. Radley AS, Hall J. The establishment and evaluation of a pharmacist -developed anticoagulant clinic. *The Pharmaceutical Journal* 1994;252:91-92.
89. Tadros L, Pugh S, Farrer M, Hambleton D. Outpatient anticoagulation clinics in Sunderland. *Hospital Pharmacist* 1999;6:269-273.
90. Boddy C. Pharmacist involvement with warfarin dosing for inpatients. *Pharmacy World and Science* 2001;23(1):31-35.
91. Brice SD. A comparative evaluation of doctor and pharmacist managed inpatient anticoagulation. *Pharmacy in Practice* 2001:134-137.
92. Stirton J, Fenelon C, MacTavish P, Fisher H, Erwin L. Clinical pharmacist warfarin dosage adjustment for in-patients. *Pharmacy World and Science* 2000;22(1):B36-7.

93. Capper E, Jones SW. Are patients satisfied with a pharmacist-led rheumatology drug monitoring clinic? *The Pharmaceutical Journal* 1999;263(7063):R66.
94. Pharmacist-led management of upper gastro-intestinal disease. *The Pharmaceutical Journal* 1997;259:25.
95. Dean J, Acomb J. A pharmacist managed lithium clinic. *The Hospital Pharmacist* 1995;2:150-152.
96. Woolfrey S, Dean C, Hall H. Hospital pharmacist prescribing: a pilot study. *The Pharmaceutical Journal* 2000;265:97-99.
97. Hughes DS, Kinnear AE, Macintyre JL, Pacitti L. Collaborative medicines management: pharmacist prescribing. *The Pharmaceutical Journal* 1999;263:170-172.
98. Glinn J, Padbury RM. Truro scheme. *The Pharmaceutical Journal* 1999;263:238.
99. Culshaw M, Dawes S. Assessing the value of a discharge pharmacist. *Pharmacy Management* 1998;14(2):22-23.
100. The Medicines Act, 1968.
101. Hamley JG. Pharmacists as prescribers. *The Hospital Pharmacist* 1997;4:2.
102. Cousins DH, Luscombe DK. 2 A new model for hospital pharmacy practice. *The Pharmaceutical Journal* 1996;256:347-351.
103. *Medicines, ethics & practice- A guide for pharmacists*. London, 2006; 30.
104. Discharge from hospital: pathway, process and practice. London: Department of Health, 2003:1-116.
105. Clinical governance framework for pharmacist prescribers and organisations commissioning or participating in pharmacist prescribing (GB wide): Royal Pharmaceutical Society of Great Britain, 2005:10.
106. Society produces clinical governance framework for prescribing. *The Pharmaceutical Journal* 2005;275:533.
107. National Prescribing Centre. Maintaining competency in prescribing. An outline framework to help pharmacist prescribers. London: National Prescribing Centre, 2003:1-28.
108. Dean B, Schachter M, Vincne, Barber ND. Causes of prescribing errors in hospital in patients: a prospective study. *The Lancet* 2002;359:1373-1378.
109. Mayor S. Report calls for strategies to reduce medication errors. *British Medical Journal* 2004;328:248.
110. Department of Health Expert Group (Chairman C. An organisation with a memory. Report of an expert group on learning from adverse events in the NHS chaired by the Chief Medical Officer: Department of Health, 2000:92.
111. Kmietowicz Z. GMC to gather data on prescribing errors after criticism of doctor's training. *British Medical Journal* 2007;334:278-279.
112. Nicholls J, Barnett N. Professional indemnity arrangements for pharmacist prescribers: National Electronic Library for Medicines, 2007.
113. How new prescribers can limit liability. *Prescribing and Medicines Management* 2006:PM3.
114. Supplementary prescribing- frequently asked questions: Department of Health, 2007.
115. Luker K, Austin L, Hogg C, Ferguson B, Smith K. Patients' views of nurse prescribing. *Nursing Times* 1997;93:515-518.
116. Luker K, Austin L, Hogg C, Ferguson B, Smith K. Nurse-patient relationships: the context of nurse prescribing. *Journal of Advanced Nursing* 1998;28(2):235-242.

117. Brooks N, Otway C, Rashid C, Kilty E, Maggs C. The patient's view: the benefits and limitations of nurse prescribing. *British Journal of Community Nursing* 2001;6(7):342-348.
118. Berry D, Courtenay M, Elisabetta B. Attitudes towards, and information needs in relation to, supplementary nurse prescribing in the UK: an empirical study. *Journal of Clinical Nursing* 2006;15(1):22-28.
119. Latter S, Maben J, Myall M, Young A. Perceptions and practice of concordance in nurses' prescribing consultations: Findings from a national questionnaire survey and case studies of practice in England. *International Journal of Nursing Studies* 2007;44(1):9-18.
120. Luker K, McHugh GA. Nurse prescribing from the community nurse's perspective. *International Journal of Pharmacy Practice* 2002;10:273-80.
121. Bradley E, Campbell P, Nolan P. Nurse prescribers: who are they and how do they perceive their role? *Journal of Advanced Nursing* 2005;51(5):439-448.
122. Latter S, Maben J, Myall M, Courtenay M, Young A, Dunn N. An evaluation of extended formulary independent nurse prescribing. Executive Summary of Final Report: University of Southampton, 2005.
123. Courtenay M, Carey N, Burke J. Independent extended and supplementary nurse prescribing practice in the UK: A national questionnaire survey. *International Journal of Nursing Studies* 2006;E-published ahead of print.
124. Kinnersley P, Anderson E, Parry K, Clement J, Archard L, Turton P, et al. Randomised controlled trial of nurse practitioner versus general practitioner care for patients requesting "same day" consultations in primary care. *British Medical Journal* 2000;320:1043-1048.
125. Horrocks S, Anderson E, Salisbury CJ. Systematic review of whether nurse practitioners working in primary care can provide equivalent care to doctors. *British Medical Journal* 2002;324:819-823.
126. Venning P, Durie A, Roland M, Roberts C, Leese B. Randomised controlled trial comparing cost effectiveness of general practitioners and nurse practitioners in primary care. *British Medical Journal* 2000;320:1048-1053.
127. Courtenay M, Carey N, Burke J. Independent extended and supplementary nurse prescribing practice in the UK: A national questionnaire survey. *International Journal of Nursing Studies* 2007;44:1093-1101.
128. Plonczynski D, Oldenburg N, Buck M. The past, present and future of nurse prescribing in the United States. *Nurse Prescribing* 2003;1(4):170-174.
129. Hughes F, Lockyer H. Evidence and engagement in the introduction of nurse prescribing in New Zealand. *Nurse Prescribing* 2004;2(3):131-136.
130. David A, Brown E. How Swedish nurses are tackling nurse prescribing. *Nursing Times* 1995;91(50):23-24.
131. Reinders T, Steinke W. Pharmacist management of anticoagulant therapy in ambulant patients. *American Journal of Hospital Pharmacy* 1979;36(5):645-8.
132. Pegg M, Bourne J, Mackay A, Lawton W, Cole R. The role of the pharmacist in the anticoagulant clinic. *Journal of Royal College of Physicians* 1985;19:39-44.
133. Millan RJ, Marion E, Chaparro ME, Thompson T, et al. Can a pharmacist-managed anticoagulation clinic be cost justified via traditional means of revenue generation and labour shifting rather than solely by an improvement in patient care? *Pharmacotherapy* 1999;19(4):505.

134. Shermock KM, Yanak F, Begany K, Bragg L, Ungar J, Goldman M, et al. Cost avoidance of providing intensive management of oral anticoagulation therapy. *Pharmacotherapy* 2000;20(3):362.
135. Farnsworth FA, Kim KY, Jacobs MR. Centralized, pharmacist-managed anticoagulation service for a university-based health system. *American Journal of Health Systems Pharmacy* 2001;58:77-8.
136. Bowden C, Carter K, Birtcher K, Chellam K, Schwartz T, Buban J, et al. Pharmacoeconomic impact of a weight-based heparin protocol. *American Journal of Health Systems Pharmacy* 1998;55(Suppl 4):S29-S32.
137. Dager WE, Branch JM, King JH, White R, Quan RS, Mussallam NA, et al. Optimization of inpatient warfarin therapy: Impact of daily consultation by a pharmacist-managed anticoagulation service. *The Annals of Pharmacotherapy* 2000;34:567-572.
138. Mamdani MM, Racine E, McCreddie S, Zimmerman C, al e. Clinical and economic effectiveness of an inpatient anticoagulation service. *Pharmacotherapy* 1999;19(9):1064-74.
139. Rivey MP, Peterson JP. Pharmacy-managed, weight-based heparin protocol. *American Journal of Hospital Pharmacy* 1993;50:279-284.
140. Rivey MP, Wood RD, Allington DR, Stratton TP, Erickson CC, Stenson TA. Pharmacy-managed protocol for warfarin use in orthopaedic surgery patients. *American Journal of Health Systems Pharmacy* 1995;52:1310-1316.
141. Saya FG, Coleman LT, Martinoff JT. Pharmacist-directed heparin therapy using a standard dosing and monitoring protocol. *American Journal of Hospital Pharmacy* 1985;42(September 1985):1965-1969.
142. To EK, Pearson GJ. Implementation & evaluation of a pharmacist-assisted warfarin dosing program. *The Canadian Journal of Hospital Pharmacy* 1997;50(4):169-175.
143. Dedden P, Chang B, Nagel D. Pharmacy-managed program for home treatment of deep vein thrombosis with enoxaparin. *American Journal of Health Systems Pharmacy* 1997;54:1968-1972.
144. Burns N. Evaluation of warfarin dosing by pharmacists for elderly medical in-patients. *Pharmacy World and Science* 2004;26:232-237.
145. Chiquette E, Amato MG, Bussey HI. Comparison of an anticoagulation clinic with usual medical care. *Archives of Internal Medicine* 1998;158:1641-7.
146. Gray DR, Garabedian-Ruffalo SM, Chretien SD. Cost-justification of a clinical pharmacist-managed anticoagulation clinic. *Drug Intelligence & Clinical Pharmacy* 1985;19:575-580.
147. Lee Y-p, Schommer JC. Effect of a pharmacist-managed anticoagulation clinic on warfarin-related hospital readmissions. *American Journal of Health Systems Pharmacy* 1996;53:1580-3.
148. Chen J, P H, To C. Anticoagulation clinic and traditional medical office care: A comparison of clinical outcomes. *Journal of the American Pharmaceutical Association* 2001;41(2):293.
149. Garabedian-Ruffalo SM, Gray DR, Sax MJ, Ruffalo RL. Retrospective evaluation of a pharmacist-managed warfarin anticoagulation clinic. *American Journal of Hospital Pharmacy* 1985;42:304-308.
150. Lesho EP, Michaud E, Asquith D. Do anticoagulation clinics treat patients more effectively than physicians? *Archives of Internal Medicine* 2000;160:243.

151. Bussey HI, Rospond RM, Quandt CM, Clark GM. The safety and effectiveness of long-term warfarin therapy in an anticoagulation clinic. *Pharmacotherapy* 1989;9(4):214-219.
152. Reid S, Radley AS. Audit of the implementation of the 3rd edition of the BCSH guidelines to determine the performance of a pharmacist-managed anticoagulant clinic. *Pharmacy World and Science* 2000;22(1):B35-36.
153. Wilson Norton JL, Gibson DL. Establishing an outpatient anticoagulant clinic in a community hospital. *American Journal of Health Systems Pharmacy* 1996;53:1151-7.
154. Bond C, Raehl C. Pharmacist-provided anticoagulation management in United States hospitals: Death rates, length of stay, medicare charges, bleeding complications and transfusions *Pharmacotherapy* 2004;24(8):953-963.
155. Locke C, Ravnan S, Patel R, Uchizono J. Reduction in warfarin adverse events requiring patient hospitalization after implementation of a pharmacist-managed anticoagulation service. *Pharmacotherapy* 2005;25(5):685-89.
156. Donovan J, Drake J, Whittaker P, Tran M. Pharmacy-managed anticoagulation: assessment of in hospital efficacy and evaluation of financial impact and community acceptance. *Journal of Thrombosis and Thrombolysis* 2006;22(1):23.
157. Witt D, Sadler M, Shanahan R, Mazzoli G, Tillman D. Effect of a centralized clinical pharmacy anticoagulation service on the outcomes of anticoagulation therapy. *Chest* 2005;127:1515-1522.
158. Willey M, Chagan L, Sisca T, Chapple K, Callahan K, Crain J, et al. A pharmacist -managed anticoagulation clinic: Six year assessment of patient outcomes. *American Journal of Health Systems Pharmacy* 2003;60:1033-7.
159. Anderson R. Cost analysis of a managed care decentralized outpatient pharmacy anticoagulation service *Journal of managed care pharmacy* 2004;10(2):159-65.
160. Chenella FC, Klotz TA, Gill MA, al e. Comparison of physician and pharmacist management of anticoagulant therapy of inpatients. *American Journal of Hospital Pharmacy* 1983;40(10):1642-5.
161. Lodwick A, Sajbel T. Patient and physician satisfaction with a pharmacist-managed anticoagulation clinic: implications for managed care organizations. *Managed Care* 2000;9:47-50.
162. Calcagno M, Pubentz M, Carey R. Improving patient satisfaction with warfarin management. *The American Journal of Managed Care* 1996;2:804-810.
163. Abdelhafiz A, NM W. Use of resources and cost implications of stroke prophylaxis with warfarin for patients with nonvalvular atrial fibrillation. *The American Journal of Geriatric Pharmacotherapy* 2003;1(2):53-60.
164. Bozovich M, Rubino CM, Edmunds J. Effect of a clinical pharmacist-managed lipid clinic on achieving national cholesterol education program low-density lipoprotein goals. *Pharmacotherapy* 2000;20(11):1375-83.
165. Geber J, Parra D, Beckley NP, Korman L. Optimizing drug therapy in patients with cardiovascular disease: The impact of pharmacist-managed pharmacotherapy clinics in a primary-care setting. *Pharmacotherapy* 2002;22(6):738-747.
166. Rehring T, Stolcpart R, Sandhoff B, Merenich J, Whitton Hollis H. Effect of a clinical pharmacy service on lipid control in patients with peripheral arterial disease. *Journal of vascular surgery* 2006;43:1205-10.

167. Mazzolini T, Irons B, Schell E, Seifert C. Lipid levels and use of lipid-lowering drugs for patients in pharmacist-managed lipid clinics versus usual care in 2 VA medical centers. *Journal of managed care pharmacy* 2005;11(9):763-771.
168. Okamoto MP, Nakahario RK. Pharmaceconomic evaluation of a pharmacist-managed hypertension clinic. *Pharmacotherapy* 2001;21(11):1337-44.
169. Vivian EM. Improving blood pressure control in a pharmacist-managed hypertension clinic. *Pharmacotherapy* 2002;22(12):1533-40.
170. Jaber LA, Halapy H, Fernet M, Tummalapalli S, Diwakaran H. Evaluation of a pharmaceutical care model on diabetes management. *The Annals of Pharmacotherapy* 1996;30:238-243.
171. Scott D, Boyd S, Stephan M, Augustine S, Reardon T. Outcomes of pharmacist-managed diabetes care services in a community health center. *American Journal of Health Systems Pharmacy* 2006;63:2116-2122.
172. Coast-Senior EA, Kroner BA, Kelley CL, Trilli LE. Management of patients with type 2 diabetes by pharmacists in primary care clinics. *The Annals of Pharmacotherapy* 1998;32:636-641.
173. McCord A. Clinical impact of a pharmacist-managed diabetes mellitus drug therapy management service. *Pharmacotherapy* 2006;26(2):248-253.
174. Bond C, Raehl C. Clinical and economic outcomes of pharmacist-managed antiepileptic drug therapy. *Pharmacotherapy* 2006;26(10):1369-1378.
175. Bond C, Raehl C. Clinical and economic outcomes of pharmacist-managed aminoglycoside or vancomycin therapy. *American Journal of Health Systems Pharmacy* 2005;62:1596-1605.
176. Jay C. The role of the pre-admissions pharmacist. *The Hospital Pharmacist* 1998;5:105-6.
177. McIntyre F, Manson K. Pre-admission clinics: extending the delivery of pharmaceutical care. *The Pharmaceutical Journal* 2004;272:478-479.
178. Shah R. Medicines management in elective surgery patients. *Hospital Pharmacist* 2000;7:73-78.
179. Kwan Y, Fernandes O, Nagge J, Wong G, Huh J-H, Hurn D, et al. Pharmacist medication assessments in a surgical preadmission clinic. *Archives of Internal Medicine* 2007;167(10):1034-1040.
180. Cousins DH, Luscombe DK. 1 Forces for change and the evolution of clinical pharmacy practice. *The Pharmaceutical Journal* 1995;255:771-776.
181. Barrett JM, Hebron B. An examination of the impact of a ward-based pharmacist on the ability of a diabetes medical ward to cope with winter pressures. *The Pharmaceutical Journal* 2002;268:28-31.
182. Hilleman DE, Wurdeman RL, Lenz TL. Therapeutic change of HMG-CoA reductase inhibitors in patients with coronary artery disease. *Pharmacotherapy* 2001;21(4):410-415.
183. Grace K, Swiecki J, Hyatt R, Gibbs H, Jones DL, Sheikh M, et al. Implementation of a therapeutic-interchange clinic for HMG-Co A reductase inhibitors. *American Journal of Health Systems Pharmacy* 2002;59:1077-82.
184. Taylor AJ, Grace K, Swiecki J, Hyatt R, al e. Lipid-lowering efficacy, safety, and costs of a large-scale therapeutic statin formulary program. *Pharmacotherapy* 2001;21(9):1130-9.
185. Fugit RV, Resch ND. Conversion of patients from simvastatin to lovastatin in an outpatient pharmacy clinic. *American Journal of Health Systems Pharmacy* 2000;57:1703-1708.

186. Ito MK, Lin JC, Morreale DB, Marcus DB, Shabetai R, Dresselhaus TR, et al. Effect of pravastatin-to-simvastatin conversion on low-density-lipoprotein cholesterol. *American Journal of Health Systems Pharmacy* 2001;58:1734-9.
187. Jansen D, Resch ND, Hoffman RM. Doxazosin to terazosin switch for benign prostatic hyperplasia. *American Journal of Health Systems Pharmacy* 1999;56:1351.
188. Chase SL, Peterson AM, Wordell CJ. Therapeutic interchange program for oral histamine H2-receptor antagonists. *American Journal of Health Systems Pharmacy* 1998;55:1382-86.
189. Gershovich O, Billups S, Delate T, Kicklighter Hoffman C, Carroll N. Assessment of clinical, service and cost outcomes of a conversion program of sumatriptan to rizatriptan ODT in primary care patients with migraine headaches. *Journal of managed care pharmacy* 2006;12(3):246-253.
190. Weatherhead S, Holmes A, Holden K. Managed substitution of modified release nitrates with an asymmetric dosing regimen. *Journal of Clinical Pharmacy and Therapeutics* 2000;25:309-313.
191. Keely JL. Pharmacist scope of practice. *Annals of internal medicine* 2002;136(1):79-85.
192. NHS Executive information policy unit. Information for health: an information strategy for the modern NHS 1998-2005, a national strategy for local implementation. London: DOH; 1998.: Department of Health, 1998.
193. Williams C. Electronic prescribing can increase efficiency of the discharge process. *Hospital Pharmacist* 2000;7(8):206.
194. Farrar K. Can electronic prescribing increase the efficiency of the discharge process? *Hospital Pharmacist* 2000;7(5):114.
195. Norris C, Thomas V, Calvert P. An audit to evaluate the acceptability of a pharmacist electronically prescribing discharge medication and providing information to GPs. *The Pharmaceutical Journal* 2001;267:857-859.
196. Farrell J, North-Lewis P, Cross M. Pharmacist prescribing in the United States. *The Pharmaceutical Journal* 1997;259:187-190.
197. Carmichael JM, O'Connell MB, Devine B, Kelly W, Ereshefsky L, Linn WD, et al. Collaborative drug therapy management by pharmacists. *Pharmacotherapy* 1997;17(5):1050-1061.
198. Galt KA. The key to pharmacist prescribing: Collaboration. *American Journal of Health Systems Pharmacy* 1995;52:1696-1699.
199. Webb CE. Prescribing medications: Changing the paradigm for a changing health care system. *American Journal of Health Systems Pharmacy* 1995;52:1693-1695.
200. Clause S, Fudin J, Mergner A, Lutz JL, Kavanaugh MM, Fessler K, et al. Prescribing privileges among pharmacists in Veterans Affairs medical centres. *American Journal of Health Systems Pharmacy* 2001;58:1143-5.
201. Kuo GM, Buckley TE, Fitzsimmons DS, Steinbauer JR. Collaborative drug therapy management services and reimbursement in a family medicine clinic. *American Journal of Health Systems Pharmacy* 2004;61:343-52.
202. Talley R. Pharmacist Prescribing. *American Journal of Health Systems Pharmacy* 1995;52:1635.
203. Boatwright DE. Legal aspects of expanded prescribing authority for pharmacists. *American Journal of Health Systems Pharmacy* 1998;55:585-594.

204. Shefcheck S, Thomas J. The Outlook for Pharmacist Initiation & Modification of Drug Therapy. *Journal of the American Pharmaceutical Association* 1996;NS36(10):597-604.
205. Conlan MF. Pharmacist prescribing (coming on strong). *Drug Topics* 1997:62-64, 67.
206. Foppe van Mil J, Schulz M, Tromp TF. Pharmaceutical care, European developments in concepts, implementation, teaching and research: a review. *Pharmacy World and Science* 2004;26:303-311.
207. Gross Z. How pharmacists help speed up the discharge process to release beds. *The Pharmaceutical Journal* 2001;267(7173):673-674.
208. Ketley D, Qualie MJ, Godfrey BD. The near patient clinical pharmacist 1. From design to pilot. *The Pharmaceutical Journal* 1998;261:247-249.
209. Qualie MJ, Godfrey BD, Ketley D. The near patient clinical pharmacist 2. From pilot to service. *The Pharmaceutical Journal* 1998;261:287-289.
210. Hobson RJ, Sewell GJ. Responsibility, accountability & factors influencing provision of pharmacist transcription of discharge prescriptions. *The International Journal of Pharmacy Practice* 2004;12:163-168.
211. Strategy needed for clinical areas in prescribing. *The Pharmaceutical Journal* 2004;273(7318):407.
212. First prescription signed by a hospital pharmacist. *The Pharmaceutical Journal* 2004;272(7292):369.
213. Weiss M, Sutton J, Adams C. Exploring Innovation in Pharmacy Practice: A Qualitative Evaluation of Supplementary Prescribing by Pharmacists: Royal Pharmaceutical Society of Great Britain, 2006:1-113.
214. George J, McCaig D, Bond C, Cunningham S, Diack LH, Watson AM, et al. Supplementary prescribing: Early experiences of pharmacists in Great Britain. *The Annals of Pharmacotherapy* 2006;40:1843-1850.
215. Dawoud D, Goodye L, Lovejoy A, Greene R. Perceptions and perceived competencies of pharmacists on supplementary prescribing training courses in London and the South East. *International Journal of Pharmacy Practice* 2004;12:R40.
216. Latif S, Cantrill J, Parker D, Tully M. The changing views of pharmacists undergoing supplementary prescribing training. *The International Journal of Pharmacy Practice* 2005;13:R50.
217. Jones R, John DN, Luscombe DK. Exploratory interviews with the first pharmacists to complete training as supplementary prescribers in Wales. *The International Journal of Pharmacy Practice* 2005;13:R6.
218. Lloyd F, McHenry L, Hughes C. Views of junior house officers/ senior house officers on pharmacist supplementary prescribing. *International Journal of Pharmacy Practice* 2005;13:R96.
219. Lloyd F, McNally L, Hughes C. Views of hospital nurses on hospital pharmacist supplementary prescribing. *International Journal of Pharmacy Practice* 2005;13:R97.
220. Smalley L. Patients' experience of pharmacist-led supplementary prescribing in primary care. *The Pharmaceutical Journal* 2006;276:567-69.
221. George J, Pflieger D, McCaig D, Bond C, Stewart D. Independent prescribing by pharmacists: a study of the awareness, views and attitudes of Scottish community pharmacists. *Pharmacy World and Science* 2006.
222. Bowling A. *Research Methods in Health*. First ed: Open University Press, 1999.
223. UK Drug Information Pharmacists' Group Directory. 1997-98.



224. Grice P. *Chemist & Druggist Directory*: London: Miller Freeman, 1998.
225. Oppenheim AN. *Questionnaire Design, Interviewing and Attitude Measurement*. 1 ed: Pinter Publishers Ltd, 1992.
226. Pallant J. *SPSS survival manual*. 1 ed. Illinois: Open University Press, 2001.
227. Child D, Cantrill J, Cooke J. Effectiveness of hospital pharmacy: Where is the evidence?: Guild of Healthcare Pharmacists, 2001.
228. *Medendum-informing primary care*: Medendum group publishing Ltd, 2003.
229. Edwards P, Roberts I, Clarke M, DiGuseppi C, Pratap S, Wentz R. Increasing response rates to postal questionnaires: systematic review. *British Medical Journal* 2002;321:1183-91.
230. Tabachnick BG, Fidell LS. *Using multivariate statistics*. Fourth ed, 2003.
231. *Qualitative Health Psychology Theories & Methods*, 1999.
232. Mays N, Pope C. Qualitative Research: Rigour and qualitative research. *British Medical Journal* 1995;311:109-112.
233. Seamark CJ, Lings P. Positive experiences of teenage motherhood: a qualitative study. *British Journal of General Practice* 2004;54:813-818.
234. Gibbs GR. *Qualitative Data Analysis*. Buckingham: Open University Press, 2002.
235. Wilkie P, Sibbald B, Raftery J, Anderson S. Prescribing at the hospital-general practice interface I: Hospital outpatient dispensing policies in England. *British Medical Journal* 1992;304:29-31.
236. McColl E, Jacoby A, Thomas L, Soutter J, Bamford C, Steen N. Design and use of questionnaires: a review of best practice applicable to surveys of health staff and patients. *Health Technology Assessment* 2001;5(31).
237. Hobson RJ, Sewell GJ. A national survey of pharmacist transcribing of discharge prescriptions. *The International Journal of Pharmacy Practice* 2003;11:89-95.
238. Miles MB, Huberman AM. *Qualitative Data Analysis- An expanded sourcebook*. 2nd ed: SAGE publications, 1994.
239. Slee A, Farrar K. What are the normal working hours for a hospital pharmacy? *The Pharmaceutical Journal* 1998;260:923-5.
240. Elfellah MS, Hillis GS. Supplementary prescribing can be adapted to improve discharge planning. *The Pharmaceutical Journal* 2005;274:338.
241. One-stop dispensing, use of patients' own drugs and self-administration schemes. *The Hospital Pharmacist* 2002;9:81-86.
242. Farrar K. Time to review prescribing in hospitals by preregistration house officers. *The Pharmaceutical Journal* 2002;268:136.
243. Aylin P, Azeem Majeed F. The killing season- fact or fiction? *British Medical Journal* 2004;309:1690.
244. Nicholls J, Tanna N, Patel R, Barnett N, Taylor B. London Pharmacist Supplementary Prescribing Project Report 2003 -06, 2006.
245. Bellingham C. How supplementary prescribing helps in both acute and chronic hospital care. *The Pharmaceutical Journal* 2004;272:640-1.
246. London pharmacists secure training funds for supplementary prescribing. *The Pharmaceutical Journal* 2003;271:399.
247. Murphy A, Scott A. Artificial nutritional support- what are the options? *Hospital Pharmacist* 2000;7(6):146-154.
248. Blake D. My career as...a cancer services pharmacist. *Hospital Pharmacist* 2004;11:146-151.

249. Horne AL, Dapolite LA. Protocol for pharmacist management of antineoplastic drug-induced adverse effects in outpatients. *American Journal of Health Systems Pharmacy* 1997;54:680-683.
250. Prescribing: new opportunities for all. *The Pharmaceutical Journal* 2003;271:770.
251. Andalo D. Why one hospital pharmacist ventures into the community to run a CHD clinic. *The Pharmaceutical Journal* 2004;273:56.
252. Bellingham C. An insider's view of the supplementary prescribing course for pharmacists. *The Pharmaceutical Journal* 2003;271:442.
253. Langleben D. Pharmacist's input into heart failure team reduces readmissions. *The Pharmaceutical Journal* 2002;269:60.
254. Anon. Pharmacist-led CHD clinic keeps going. *The Pharmaceutical Journal* 2002;268:312.
255. DOH: National Service Framework for renal services. *The Pharmaceutical Journal* 2004;272:75.
256. Medicine review clinics for renal patients. *The Pharmaceutical Journal* 2000;265:23.
257. Health Do. Older People. London: Department of Health, 2001.
258. The National Service Framework for Renal Services. Part one: Dialysis and Transplantation. London: Department of Health, 2004:50.
259. Spiller C, Ashcroft D. Controlled trial of a pharmacist-led surgical pre-admission clinic in secondary care. *International Journal of Pharmacy Practice* 2004;12:R31.
260. The new GMS contract explained: General Practitioners Committee, 2004.
261. National Service Framework for Coronary Heart Disease. London: Department of Health, 2000:128.
262. National Service Framework for Diabetes: standards. London: Department of Health, 2001:45.
263. British Guideline on the Management of Asthma. London: British Thoracic Society and Scottish Intercollegiate Guidelines Network, 2004:95.
264. Management of chronic obstructive pulmonary disease in adults in primary and secondary care. London: NICE, 2004:54.
265. Williams B, Poulter NR, Brown MJ, Davis M, McInnes GT, Potter JF, et al. British Hypertension Society Guidelines for hypertension management 2004 (BHS-IV): summary. *British Medical Journal* 2004;328:634-40.
266. Guillaume L, Cooper R, Avery AJ, Mitchell S, Ward P, Anderson C, et al. Supplementary prescribing by community and primary care pharmacists: an analysis of PACT data, 2004-2006. *Journal of Clinical Pharmacy and Therapeutics* 2008;33:11-16.
267. A National Service Framework for Mental health. London: Department of Health, 1999:149.
268. Feetam C, Newton G. Pharmacist prescribing in mental health. *Hospital Pharmacist* 2004;11:76-77.
269. Bradley E, Nolan P. The progress of nurse prescribing: a commentary. *Nurse Prescribing* 2004;2(4):148-151.
270. Larsen D. Issues affecting the growth of independent prescribing. *Nursing Standard* 2004;19(2):33-39.
271. Hall J, Cantrill J, Noyce P. Why don't trained community nurse prescribers prescribe? *Journal of Clinical Nursing* 2006;15:403-412.

272. George J, McCaig D, Bond C, Cunningham S, Diack LH, Stewart D. Benefits and challenges of prescribing training and implementation: perceptions and early experiences of RPSGB prescribers. *International Journal of Pharmacy Practice* 2007;15:23-30.
273. Cooper R, Anderson C, Avery T, Bissell P, Guillaume L, Hutchinson A, et al. Nurse and pharmacist supplementary prescribing in the UK- A thematic review of the literature. *Health Policy* 2008;85:277-292.
274. Scoping study of supplementary prescribing: Department of Health, (Last modified date) 9<sup>th</sup> Feb 2007.(WWW)  
[http://www.dh.gov.uk/en/Healthcare/Medicinespharmacyandindustry/Prescriptions/TheNon-MedicalPrescribingProgramme/Supplementaryprescribing/DH\\_4123029](http://www.dh.gov.uk/en/Healthcare/Medicinespharmacyandindustry/Prescriptions/TheNon-MedicalPrescribingProgramme/Supplementaryprescribing/DH_4123029)
275. Donaghy D. The asthma specialist and patient education. *Professional Nurse* 1995;11(3):160-2.
276. Porter-Jones G, Francis S, Benfield G. Running a nurse-led nebulizer clinic in a district general hospital. *British Journal of Nursing* 1999;8(16):1079-84.
277. Davies L, Wilkinson M, Bonner S, Calverley P, Angus RM. "Hospital at home" versus hospital care in patients with exacerbations of chronic obstructive pulmonary disease: prospective randomised controlled trial. *British Medical Journal* 2000;321:1265-1268.
278. Ram FS, Wedzicha JA, Wright J, Greenstone M. Hospital at home for patients with acute exacerbations of chronic obstructive pulmonary disease: systematic review of evidence. *British Medical Journal* 2004;329:315-20.
279. Wallymahmed M, MacFarlane I. Nurse prescribing in diabetes care: a case study. *Journal of Diabetes Nursing* 2003;7(10):372-8.
280. Bluc L, Lang E, McMurray JJV, Davie AP, McDonagh TA. Randomised controlled trial of specialist nurse intervention in heart failure. *British Medical Journal* 2001;323:715-718.
281. Coady E. Chronic Heart Failure 3. Initiatives in coronary care services. *Nursing Times* 2002;98(30):41-44.
282. Little C. Nurse prescribing of the combined oral contraceptive pill. *Nurse Prescribing* 2003;1(2):62-68.
283. Hicks C, Tyler C. Assessing the skills for family planning nurse prescribing: development of a psychometrically sound training needs analysis instrument. *Journal of Advanced Nursing* 2002;37(6):518-531.
284. Sakr M, Kendall R, Angus J, Saunders A, Nicholl J, Wardrope J. Emergency nurse practitioners: a three part study in clinical and cost effectiveness. *Emergency Medicine* 2003;20:158-163.
285. Lancaster T, Dobbie W, Vos K, Yudkin P, Murphy M, Fowler G. Randomized trial of nurse-assisted strategies for smoking cessation in primary care. *British Journal of General Practice* 1999;49:191-4.
286. Meeting Department of Health smoking cessation targets Recommendations for primary care trusts: Health Development Agency, 2003:30.
287. Tye C. The emergency nurse practitioner role in major accident and emergency departments: professional issues and the research agenda. *Journal of Advanced Nursing* 1997;26:364-370.
288. Bentley J, Bloomfield J. Prescribing in palliative care: the primacy of patient involvement. *Nurse Prescribing* 2003;1(2):72-77.

289. Brown CA, Richardson C. Nurses' in the multi-professional pain team: A study of attitudes, beliefs and treatment endorsements. *European Journal of Pain* 2006;10:13-22.
290. Taylor F, Gray A, Cohen H, Gaminara L, Ramsay M, Miller D. Costs and effectiveness of a nurse specialist anticoagulant service. *Journal of Clinical Pathology* 1997;50:823-828.
291. Antoniou S, Webb D, Davies J, Bates I, McRobbie D, Wright J, et al. General level competency framework improves the clinical practice of hospital pharmacists: final results of the south of England trial. *International Journal of Pharmacy Practice* 2004;12:R22-23.
292. Agenda for Change: Department of Health, 2004.
293. Avery AJ, Savelyich B, Wright L. Doctor's views on supervising nurse prescribers. *Prescriber* 2004;September:56-61.
294. Bellingham C. Pharmacist prescribers: is finding a mentor a barrier to accreditation? *Prescribing and Medicines Management* 2006:PM1-2.
295. A sweet pill for pharmacists: Department of Health, 2004.
296. Bellingham C. What the new contract has in store. *The Pharmaceutical Journal* 2004;273(7317):385.
297. Walshe K, Smith J, Dixon J, Edwards N, Hunter DJ, Mays N, et al. Primary Care Trusts. *British Medical Journal* 2004;329:871-872.
298. Latter S, Rycroft-Malone J, Yerrell P, Shaw D. Evaluating educational preparation for a health education role in practice: the case of medication education. *Journal of Advanced Nursing* 2000;32(5):1282-1290.
299. No obstacle to pharmacists prescribing. *The Pharmaceutical Journal* 2002;269:450.
300. While A, Mudaly M, Nathan A. Views of community pharmacists regarding supplementary prescribing. *International Journal of Pharmacy Practice* 2004;12:R43.
301. Jackson C. Implementing supplementary prescribing-a baseline survey by the national prescribing centre. *The Pharmaceutical Journal* 2003;270:22-23.
302. Wilson P. The development of a curriculum for supplementary prescribing. *The Pharmaceutical Journal* 2003;270:21-22.
303. Drury M, Greenfield S, Stilwell B, Hull FM. A nurse practitioner in general practice: patient perceptions and expectations. *Journal of the Royal College of General Practitioners* 1988;38:503-505.
304. Salisbury CJ, Tettersell MJ. Comparison of the work of a nurse practitioner with that of a general practitioner. *Journal of the Royal College of General Practitioners* 1988;38:314-316.
305. Brooks F, Phillips D. Do women want women health workers? Women's views of the primary health care service. *Journal of Advanced Nursing* 1996;23:1207-1211.
306. Paxton F, Porter M, Heaney D. Evaluating the workload of practice nurses: a study. *Nursing Standard* 1996;10(21):33-38.
307. Williams SJ, Calnan MW. Convergence and divergence: Assessing criteria of consumer satisfaction across general practice, dental and hospital care settings. *Social Science & Medicine* 1991;6:701-716.
308. Stilwell B. An ideal consultation. In: Salvage J, editor. *Nurse Practitioners*. London: Kings Fund, 1991:67-73.
309. Fawcett Henesy A, West P. Nurse practitioners: the South Thames RHA experience. *Nursing Times* 1995;91(12):40-41.

310. Gray J. The effect of the doctor's sex on the doctor-patient relationship. *Journal of the Royal College of General Practitioners* 1982;32:167-169.
311. Salter C, Holland R, Harvey I, Henwood K. "I haven't even phoned my doctor yet." The advice giving role of the pharmacist during consultations for medication review with patients aged 80 or more: qualitative discourse analysis. *British Medical Journal*, 2007.
312. Mesler M. Boundary encroachment and task delegation: clinical pharmacists on the medical team. *Sociology of Health and Illness* 1991;13(3):310-331.
313. Ballantyne PJ. The role of pharmacists in primary care. *British Medical Journal* 2007;334:1066-67.
314. Holland R, Brooksby I, Lenaghan E, Ashton K, Hay L, Smith R, et al. Effectiveness of visits from community pharmacists for patients with heart failure: HeartMed randomised controlled trial. *British Medical Journal*, 2007.
315. Hughes C, McCann S. Perceived interprofessional barriers between community pharmacists and general practitioners: a qualitative assessment. *British Journal of General Practice* 2003;53:600-606.
316. Dr Who? Health Which? investigates expanded role for pharmacists. *Which? news release archive*: Consumers' Association, 2003.
317. Cipolle R, Strand L, Morley P. *Pharmaceutical Care Practice*. New York: McGraw Hill, 1998.
318. Bellingham C. Space, time and team working: issues for pharmacists who wish to prescribe. *The Pharmaceutical Journal*, 2002:562-563.
319. The Shipman Inquiry: Fifth Report, Safeguarding Patients: Lessons from the Past - Proposals for the Future. Chapter 13 The Advantages and Disadvantages of Single-Handed Practices: The Shipman Inquiry, 2004.
320. A focus on General Practice in England: Audit Commission, 2002.
321. Timeline: Child benefits records loss BBC news, 2007.
322. Lloyd F, Hughes C. Pharmacists and mentors views on the introduction of pharmacist supplementary prescribing: a qualitative evaluation of views and context. *International Journal of Pharmacy Practice* 2007;15:31-37.
323. Parker S, Candolish C, Davidson L, Worsley A. How many pharmacists are writing discharge prescriptions in the north of England? *The International Journal of Pharmacy Practice* 2003;11(Supplement. September 2003):R46.
324. Supplementary prescribing: Department of Health, 2003.

## **PUBLICATIONS AND DISSEMINATION OF RESULTS**

### Publications

1. Hobson RJ, Sewell GJ. UK survey of discharge prescriptions, transcribing & development of the hospital pharmacist-prescribing role. *International Journal of Pharmacy Practice* 2002;10 (Suppl)(September 2002):R12.
2. Hobson RJ, Sewell GJ. Factors influencing provision of pharmacist discharge prescription transcription services & authorisation requirements of pharmacist-written prescriptions. *International Journal of Pharmacy Practice* 2002;10(suppl)(September 2002):R62.
3. Hobson RJ, Sewell GJ. A national survey of pharmacist transcribing of discharge prescriptions. *The International Journal of Pharmacy Practice* 2003;11:89-95.
4. Hobson RJ, Sewell GJ. Responsibility, accountability & factors influencing provision of pharmacist transcription of discharge prescriptions. *The International Journal of Pharmacy Practice* 2004;12:163-168.
5. Hobson RJ, Sewell GJ. Supplementary prescribing by pharmacists in England. *American Journal of Health Systems Pharmacy* 2006;63:244-53.
6. Hobson RJ, Sewell GJ. Risks and concerns about supplementary prescribing: Survey of primary and secondary care pharmacists. *Pharmacy World and Science* 2006;28:76-90.
7. Hobson RJ, Sewell GJ. A survey of nurse supplementary prescribing implementation in primary and secondary care in England. 12th Health Services Research and Pharmacy Practice Conference; 2006 3rd and 4th April 2006; University of Bath. Royal Pharmaceutical Society of Great Britain, London.
8. Hobson RJ, Scott JA. A qualitative evaluation of patient opinion on pharmacist and nurse independent prescribing. *International Journal of Pharmacy Practice* 2007;15(3):B41-42.

### Presentations

The results of the first stage of this study were presented at the British Pharmaceutical Conference, Manchester, 23rd-25<sup>th</sup> September 2002.

## APPENDICES

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## **APPENDIX 1**

### **References that cite papers that have been published from this work:**

1. Le Blanc J, Seoane-Vazquez E, Dasta J. Survey of hospital pharmacist activities outside of the United States. *American Journal of Health Systems Pharmacy* 2007;64:1748-1755.
2. Penick Brock T, Dean Franklin B. Differences in pharmacy terminology and practice between the UK and the US. . *American Journal of Health Systems Pharmacy* 2007;64:1541-1546.
3. Rahman M, Green CF, Armstrong D. An evaluation of pharmacist-written hospital discharge prescriptions on general surgical wards *International Journal of Pharmacy Practice* 2005;13:179-185.
4. George J, McCaig D, Bond C, Cunningham S, Diack LH, Stewart D. Benefits and challenges of prescribing training and implementation: perceptions and early experiences of RPSGB prescribers. *International Journal of Pharmacy Practice* 2007;15:23-30.
5. Wawruch M, Zikavska M, Wsolova L, Kuzelova M, Tisonova J, Gajdosik J, et al. Polypharmacy in elderly hospitalised patients in Slovakia *Pharmacy World and Science* 2007;Published on-line at moment.
6. Costa i Font J. Prescripción suplementaria: evidencia del Reino Unido: Federacion de Asociaciones de Enfermeria Comunitaria y Atencion Primaria.
7. Tonna A, Stewart D, West B, al e. Pharmacist prescribing in the UK- a literature review of current practice and research. *Journal of Clinical Pharmacy and Therapeutics* 2007;32(6):545-556.
8. Tully M, Latif S, Cantrill J. Pharmacist's changing views of their supplementary prescribing authority. *Pharmacy World and Science* 2007;29(6):628-634.
9. George J, McCaig D, Bond C, Cunningham S, Diack LH, Watson AM, et al. Supplementary prescribing: Early experiences of pharmacists in Great Britain. *The Annals of Pharmacotherapy* 2006;40:1843-1850.
10. Foppe van Mil J, Schulz M. A review of Pharmaceutical Care in Community Pharmacy in Europe. *Harvard Health Policy Review* 2006;7(1):155-168.
11. Elfellah MS, Hillis GS. Supplementary prescribing can be adapted to improve discharge planning. *The Pharmaceutical Journal* 2005;274:338.
12. Bessell T, Marriott J, Emmerton L, Nissen L. Improving Australian's Access to Prescription Medicines: Development of Pharmacy Practice Models: Monash University and The University of Queensland, 2005:214.
13. Rose D, Stuart E, Williams R. Introducing a technician discharge prescription transcribing service. *Hospital Pharmacist* 2005;12:233-236.
14. Cooper R, Anderson C, Avery T, Bissell P, Guillaume L, Hutchinson A, et al. Nurse and pharmacist supplementary prescribing in the UK- A thematic review of the literature. *Health Policy* 2008;85:277-292.

## **APPENDIX 2**

## **South West Multi-centre Research Ethics Committee**

05 October 2006

Mrs Rachel Hobson  
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Dear Mrs Hobson

**Re: MREC/03/6/76: Supplementary prescribing in secondary care in England, a survey of chief pharmacist's opinions.**

This study was given a favourable ethical opinion by the Committee on 9 October 2003. It is a condition of approval by the Research Ethics Committee that the Chief Investigator should submit a progress report for the study 12 months after the date on which the favourable opinion was given, and then annually thereafter.

I should be grateful if you would let me know if this study is still ongoing or has been completed and submit the appropriate report form.

Guidance on progress reports and a copy of the standard COREC progress report form is available at <http://www.corec.org.uk/applicants/applv/proaress.htm>.

There is also guidance on declaring the end of the study at <http://www.corec.org.uk/applicants/applv/endofproiect.htm>.

REC reference number MREC/03/6/76  
correspondence

Please quote this number on all

Yours sincerely

Barbara Inger  
Committee Administrator

# **Central Office for Research Ethics Committees (COREC)**

## **DECLARATION OF THE END OF A STUDY**

(For all studies except clinical trials of investigational medicinal products)

*To be completed in typescript by the Chief Investigator and submitted to the Research Ethics Committee that gave a favourable opinion of the research ("the main REC") within 90 days of the conclusion of the study or within 15 days of early termination. For questions with Yes/No options please indicate answer in bold type.*

### **1. Details of Chief Investigator**

Name: Rachel Hobson

Address: Pharmacy & Pharmacology Dept.,  
University of Bath,  
Claverton Down,  
BATH  
BA2 1AY

Telephone: 01225 384081

E-mail: [R.J.Hobson@bath.ac.uk](mailto:R.J.Hobson@bath.ac.uk)

Fax: 01225 386114

### **2. Details of study**

Full title of study: Supplementary prescribing in secondary care in England, a survey of chief pharmacist's opinions.

Research sponsor: University of Bath

Name of main REC: South West Multi-centre Research Ethics Committee

Main REC reference number: MREC/03/6/76

### **3. Study duration**

Date study commenced: Pilot started in February 2004

Date study ended: Data collection finished in August 2004

Did this study terminate prematurely? **Yes / No**

*If yes please complete sections 4, 5 & 6, if no please go direct to section 7.*

### **4. Circumstances of early termination**

What is the justification for this early termination?

### **5. Temporary halt**

Is this a temporary halt to the study? **Yes / No**

If yes, what is the justification for e.g. Safety, difficulties recruiting participants, trial has temporarily halting the study? When *not commenced*, other reasons.

do you expect the study to re-start?

### **6. Potential implications for research participants**

Are there any potential implications for research participants as a result of terminating/halting the study prematurely? Please describe the steps taken to address them.

**7. Final report on the research**

Is a summary of the final report on  
the research enclosed with this form? **Yes / No**  
*If no, please forward within 12 months of the end of the study.*

**8. Declaration**

Signature of Chief Investigator:

Print name: Rachel Hobson

Date of submission: 10/10/06

**Dr S Evans - Chairman**

**Eastern MREC**

All correspondence to:

Anne Bumley

House No.1

Papworth Hospital NHS Trust

Papworth Everard, Cambridge, CB3 8RE

Tel: 01480 364757

Fax 01480364887

Email: [EastemMREC@aol.com](mailto:EastemMREC@aol.com)

**Dr M Wilkinson - Vice Chairman**

Our ref: 04/5/002caapri04

6<sup>th</sup> May 2004.

Mrs R Hobson

2.52. Pharmacy and Pharmacology Dept

University of Bath

Claverton Down

Bath, BA2 7AY

Dear Mrs Hobson

**MREC 04/5/002. Supplementary prescribing in primary care in England, a survey of primary care trust pharmacist's opinions**

**Protocol no. dated 16/12/03**

**Sponsors ref no. not given**

**USE YOUR MREC REFERENCE ON ALL CORRESPONDENCE AND QUOTE IT WHEN MAKING TELEPHONE ENQUIRIES**

*Please note \*\*\*: your study has been considered and approved under the original MREC system and not as a new application being considered for the first time after April 2004. Therefore the following letter is appropriate and valid for the system of review used: except for changes under Multi centre studies requiring site specific assessment/or for multi centre studies with no local researcher.*

*Please refer to the COREC website on [www.corec.org.uk](http://www.corec.org.uk) for up to date information on how to apply for site specific assessment/ and for MC studies with no local researcher note: you should arrange for all relevant host organisations to be notified that the research will be taking place, and provide a copy of the REC application, the protocol and this letter.*

The Chairman and lead members agreed that there is no objection on ethical grounds to the proposed study. I am, therefore, happy to give you our approval on the understanding that you will follow the conditions of approval set down below. A record of the review undertaken by the MREC is contained in the attached MREC response form. The project must be started within three years of the date on which MREC approval is given.

While undertaking the review of your application the MREC noted the research involves the establishment of a new disease or patient database for research purposes/the use of an existing database collected for previous research or other purposes with subsequent patient contact. **For this reason you are asked to read carefully the sections concerning LREC involvement and local NHS management set out below as there are specific requirement involved when undertaking such research\*\*\***

**MREC Conditions of Approval.**

- The protocol approved by the MREC is followed and any changes to the protocol are undertaken only after MREC approval.
- If projects are approved before funding is received, the MREC must see, and approve any major changes made by the funding body. The MREC would expect to see a copy of the final questionnaire before it is used.
- You must complete and return to the MREC the annual report form (progress of study) that is enclosed, and the final report form when your research is completed. (use the progress of study

report form for the annual and final report) .

- You must promptly inform the MREC of:
  - (i) any changes that increase the risk to subjects and/or affect significantly the conduct of the research;
  - (ii) any new information that may affect adversely the safety or welfare of the subjects or the conduct of the trial.
- You must complete and return to the MREC the enclosed annual review form once a year, and when your research is completed.

### **LREC involvement**

When undertaking the review of your project the MREC observed that there is/ limited patient contact by a local clinician who is performing technical procedures or additional data collection as described in the MREC approved protocol. Initial contact by a local clinician for purposes of recruitment. It is felt that these tasks appear well within his/her routine professional competence and adequate facilities for such procedure are available as part of his /her normal professional practice.

For this reason you are asked to only inform the appropriate LREC of the project by sending a copy of this letter and also **giving the name and contact details of the local clinician involved. If** (unusually) the LREC has any reason to doubt that the local clinician is competent to carry out the tasks required, it will inform the clinician and the MREC that gave ethical approval giving full reasons.

You are not required to wait for confirmation from the LREC before starting your research.

### **Local NHS Management**

The local clinician must inform his/her NHS organisation of their co-operation in the research project and the nature of their involvement. Care should be taken to ensure with the NHS organisation that local indemnity arrangements are adequate.

### **Legal and Regulatory Requirements**

It remains your responsibility to ensure in the subsequent collection, storage or use of data or research sample you are not contravening the legal or regulatory requirements of any part of the UK in which the research material is collected, stored or used. If data is transferred outside the UK you should be aware of the requirements of the Data Protection Act 1998.

### **ICH GCP Compliance**

The MRECs are fully compliant with the International Conference on Harmonisation/Good Clinical Practice (ICH GCP) Guidelines for the Conduct of Trials Involving the Participation of Human Subjects as they relate to the responsibilities, composition, function, operations and records of an Independent Ethics Committee/Independent Review Board. To this end it undertakes to adhere as far as is consistent with its Constitution, to the relevant clauses of the ICH Harmonised Tripartite Guideline for Good Clinical Practice, adopted by the Commission of the European Union on 17 January 1997. The Standing Orders and Statement of Compliance are available with the application form and guidelines for researchers and on the Internet at [www.corec.org.uk](http://www.corec.org.uk)

Yours sincerely

Anne Burnley  
For Dr S Evans, Chairman.

**NB.**

MREC. Response form/ Progress of study form can be downloaded from the COREC website, but hard signed copy only may be submitted.



**West Essex Local Research Ethics Committee**  
c/o The Princess Alexandra Hospital NHS Trust  
Terminus House The High Harlow Essex CM20 1XA

Tel/Fax: 01279694917  
Email: [liz.wrighton@essexsha.nhs.uk](mailto:liz.wrighton@essexsha.nhs.uk)

13 October 2005

Mrs Rachel Hobson  
Teacher/Practitioner Pharmacist  
University of Bath  
Pharmacy & Pharmacology Department  
Claverton Down  
BATH BA27AY

Dear Mrs Hobson

**Full title of study: A qualitative analysis of patients perceptions of pharmacists as independent prescribers within secondary and primary care.**

**REC reference number: 05/Q0301/39**

Thank you for your letter of 04 October 2005, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

**Confirmation of ethical opinion**

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised.

**Ethical review of research sites**

The Committee has designated this study as exempt from site-specific assessment (SSA). There is no requirement for [other] Local Research Ethics Committees to be informed or for site-specific assessment to be carried out at each site.

**Conditions of approval**

The favourable opinion is given provided that you comply with the conditions set out in the attached document. You are advised to study the conditions carefully.

**Approved documents**

The final list of documents reviewed and approved by the Committee is as follows:

Document	Version	Date
Application- Page 11 only		24 August 2005
Application		24 August 2005
Investigator CV		23 August 2005
Protocol	2	04 October 2005
Letter from sponsor		15 August 2005
Peer Review		
Compensation Arrangements		10 August 2005
Interview Schedules/Topic Guides	2	04 October 2005
Letter of invitation to participant	2	04 October 2005
Participant Information Sheet	3	04 October 2005
Participant Consent Form	1	23 August 2005
Response to request for further information		04 October 2005

Other- Supervisor CV		01 June 2005
Other- Expression of Interest Form	(no version number)	
Other- Prescriber's selection criteria	1	10 August 2005
Other- Emails from Pharmacists, GPs & Consultant agreeing to participate		27 August 2005

### **Research governance approval**

You should arrange for the R&D department at all relevant NHS care organisations to be notified that the research will be taking place, and provide a copy of the REC application, the protocol and this letter.

All researchers and research collaborators who will be participating in the research must obtain final research governance approval before commencing any research procedures. Where a substantive contract is not held with the care organisation, it may be necessary for an honorary contract to be issued before approval for the research can be given.

### **Statement of compliance**

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

**05/Q0301/39**

**Please quote this number on all correspondence**

With the Committee's best wishes for the success of this project

*Yours sincerely*

*Hugh Bliss*  
*Chair*

*Enclosures: Standard approval conditions*

Copy to: Professor Anthony Smith  
University of Bath  
Pharmacy & Pharmacology Dept  
Claverton Down  
Bath BA27AY

An advisory committee to EssexStrategic Health Authority

Our Ref: 2005/075

19 October 2005

RDSU  
Wolfson Centre  
Royal United Hospital  
BATH BA13NG  
Tel: 01225824121  
e-mail: [m.perkins@bath.ac.uk](mailto:m.perkins@bath.ac.uk)

Mrs Rachel Hobson  
Teacher/Practitioner Pharmacist  
University of Bath  
Pharmacy and Pharmacology Department  
Claverton Down  
Bath  
BA27AY

Dear Mrs Hobson

**A qualitative analysis of patients' perceptions of pharmacists as independent prescribers within secondary and primary care**

I am pleased to tell you that the above project has been approved by Bath and North East Somerset Primary Care Trust, subject to the conditions below, to recruit General Practitioners from this Trust. Please could you make it clear to the GPs that although the PCT has approved the study, this does not imply that the PCT will pay for their time to take part. BANES PCT is a member of the Pan-Bath and Swindon Primary Care Research Consortium.

R&D approval is separate from ethics approval and is also essential for the conduct of research within NHS trusts. It is subject to the following requirements:

1. It is a condition of the approval that the project is carried out according to Good Clinical Practice and with the guidelines of the NHS Research Governance Framework (downloadable from [www.doh.gov.uk/research/rd1/researchgovernancelresearchgovindex.htm](http://www.doh.gov.uk/research/rd1/researchgovernancelresearchgovindex.htm)). You have responsibility for ensuring that all participants give informed consent and that yourself and any co-workers adhere to the protocol agreed by the ethics committee.
2. If there are any alterations to the protocol after the study has started, you must inform the **LREC** and the **R&D** department.
3. It is my duty to remind you that as Principal Investigator that you will be required to provide us, at least annually, with project monitoring and outcome information.

If you need any further support or information, please do not hesitate to contact me at the above address.

Yours sincerely

**MARY PERKINS**

Research and Development Manager

Cc: Rosie Rowe

Bath and North East Somerset Primary Care Trust - Swindon Primary Care Trust  
West Wiltshire Primary Care Trust - Kennet and North Wiltshire Primary Care Trust

Bristol North Primary Care Trust  
Bristol South and West Primary Care Trust  
King Square House  
King Square  
Bristol  
BS2 BEE  
Tel: 0117 976 6600  
Fax: 0117 9766601  
Minicom: 0117 9002675  
Date: 21<sup>st</sup> October 2005

Mrs Rachel Hobson,  
Department of Pharmacy and Pharmacology,  
University of Bath,  
Claverton Down,  
Bath,  
BA2 7AY

Dear Mrs Hobson,

**A qualitative analysis of patients' perceptions of pharmacists as independent prescribers within secondary and primary care**

Thank you for your correspondence regarding the "A qualitative analysis of patients' perceptions of pharmacists as independent prescribers within secondary and primary care" research study and the subsequent information you have sent to us.

We are pleased to inform you that Bristol North Primary Care Trust has approved your study.

This approval is granted on the understanding that the Principal Investigator will follow the requirements identified in the Research Governance Framework for Health and Social Care, 2<sup>nd</sup> edition, 2005, in particular with relation to confidentiality and data protection. Please find details on research governance at the Department of Health Governance website:.

<http://www.dh.gov.uk/PolicyAndGuidance/ResearchAndDevelopment/ResearchAndDevelopmentAZ/ResearchGovernance/fs/en>

Any changes to the study protocol will need to be approved by the research ethics committee. Please send an amended protocol and approval letter to inform us of any changes. If any adverse events occur during the study, please follow the standard procedures for the particular PCT in which this occurs.

Please note that your study is logged onto a PCT Research & Development Database (covering a collaborative of four PCTs). Any information stored is for internal and external use. Information will be used in reporting to the Department of Health and is in the public domain.

We are continually assessing the impact of any research being conducted in our area, and we ask that you send us a copy of your final report on the project, or if your study extends over a year, interim annual reports. If publications arise we would also be grateful for copies. This will allow us to consider and share your findings with other PCTs in the Research Collaborative, which will enable the PCTs to improve services to our patients.

We wish you well with your study and if you have any further queries, please do not hesitate to contact us.

Yours sincerely,

Mike Lacey  
Research & Development Co-ordinator  
Avon Primary Care Research Collaborative

Telephone: 0117 900 2686  
Fax: 0117 900 3409  
E-mail: [Mike.Lacey@bristolnorth-pct.nhs.uk](mailto:Mike.Lacey@bristolnorth-pct.nhs.uk)  
Web: <http://www.apcrc.nhs.uk>

cc Professor Anthony Smith, Department of Pharmacy and Pharmacology, University of Bath

# Swindon and Marlborough NHS Trust

RESEARCH & DEVELOPMENT  
Great Western Hospital  
Marlborough Road  
Swindon SN3 6BB

T: 01793 605565

30th November 2005

Mrs Rachel Hobson  
Teacher/Practitioner Pharmacist  
Pharmacy Dept  
GWH

Dear Rachel

## **APPROVAL OF RESEARCH PROJECT: A qualitative analysis of patient's perceptions of pharmacists**

Thank you for returning the completed R&D Project Form. As you have successfully obtained Trust and Ethical approval, please accept this letter as confirmation that you may proceed with your research project within this Trust.

In accordance with the Research Governance Framework all researchers must be aware of their obligation to comply with the Data Protection Act and the Health & Safety Act. You are also required to inform the Data Protection Officer of your intended project prior to the start of research.

After 6/12 months into your trial (depending on the duration of research) you will be asked to complete a short form in order to report progress and any changes to your project. Please also note that the R&D department will conduct a random audit of 10% of all research trials/projects being conducted within the Trust each year and your research may be included.

Please notify the R&D department when your research has been completed and of any resulting publications.

Finally good luck with your research and please contact the R&D department again if you have any further queries.

Thank you for your co-operation.

Yours sincerely

KATH BROWN  
Research & Development Manager

R&D Manager: Seott Harfield Tel: 01273 696955 ext. 7497  
E-mail: [seott.harfield@bsuh.nhs.uk](mailto:seott.harfield@bsuh.nhs.uk)  
R&D Administrator: Paul Riehardson Tel 01273 696955 ext 7513  
E-mail: [pauld.riehardson@bsuh.nhs.uk](mailto:pauld.riehardson@bsuh.nhs.uk)

## Brighton and Sussex NHS University Hospitals

NHS Trust  
Research & Development Management Team  
Royal Sussex County Hospital  
South Point Building  
Eastern Road  
Brighton  
BN2 5BE  
REC Ref: 05/Q0301/39

Date: 16<sup>th</sup> June 2006

Mrs Rachel Hobson  
Pharmacy & Pharmacology Department  
University of Bath  
Claverton Down  
Bath  
BA2 7AY

Dear Rachel

**RE: A qualitative analysis of patients perceptions of pharmacists as independent prescribers within secondary and primary care.**

Thank you for receipt of your completed NHS R&D Application Form for the above named study. I can confirm that the Trust's Research & Development Management Office have approved the study. Your study has been allocated the following reference: **06/062/HOB**. Please quote this in all future correspondence.

It would be appreciated if you could inform me when the study is complete.

Yours sincerely,

**Paul Richardson**  
**Research & Development Administrator**

## **APPENDIX 3**



**Pharmaceutical input to the discharge process.  
A survey of Hospital Pharmacy Services.**

**Instructions for completion:**

A senior clinical pharmacy manager or the pharmacist in charge of the pharmacist discharge service should complete this questionnaire (if you have such a service in place).

This questionnaire should take approximately 15 to 30 minutes to complete.

Please tick one box for each question unless otherwise specified. If there is insufficient space provided for you to answer some of the questions then continue on a separate piece of paper indicating the question number clearly. (Please note the figures beside the tick boxes are for office use only.)

All answers will be treated in the strictest confidence. When the questionnaire is completed please return it in the enclosed pre-paid envelope.

**For the purposes of this questionnaire, the following definitions are applied:**

**Dependent prescribing-** Refers to a pharmacist that has been authorised to prescribe certain medicines for patients whose condition has been diagnosed or assessed by an independent prescriber, within an agreed assessment and treatment plan<sup>1</sup>.

**Independent prescribing-** Refers to a pharmacist who is responsible for the initial assessment of the patient and for devising the broad treatment plan, with the authority to prescribe the medicines required as part of that plan<sup>1</sup>.

**Transcribing-** Refers to a process where a pharmacist copies a list of drugs that has been prescribed by a doctor from one chart to another chart or prescription.

**References:**

**1.) Review of prescribing, supply and administration of medicines, Final Report  
March 1999 Department of Health.**

**Section A : General Information:**

1.) What is your job title? (Please specify below)

.....

2.) What type of hospital are you based at?

- ☐<sub>1</sub>    Teaching hospital  
☐<sub>2</sub>    District General Hospital  
☐<sub>3</sub>    Other (please specify) .....

3.) How many in-patient beds are there in your hospital?

- |   |   |
|---|---|
| <input type="checkbox"/> <sub>1</sub> 100 or less | <input type="checkbox"/> <sub>5</sub> 601-800           |
| <input type="checkbox"/> <sub>2</sub> 101-200     | <input type="checkbox"/> <sub>6</sub> 801-1000          |
| <input type="checkbox"/> <sub>3</sub> 201-400     | <input type="checkbox"/> <sub>7</sub> 1001-1500         |
| <input type="checkbox"/> <sub>4</sub> 401-600     | <input type="checkbox"/> <sub>8</sub> greater than 1500 |

4.) How many whole time equivalent pharmacists are employed at each job grade in your hospital?

A .....	E .....	Other.....
B .....	F .....	
C .....	G .....	
D .....	Vacant positions (grade) .....	

## **Section B: Pharmacist prescribing and transcribing:**

5.) Do you currently employ pharmacists that undertake the following activities as part of their role? -Tick more than one box if necessary.

*See instructions for completion at the beginning of the questionnaire for descriptions of transcribing/ dependent prescribing etc.*

- ☐<sub>1</sub> Transcribing discharge prescriptions which are then signed by the doctor at a later stage
- ☐<sub>2</sub> Transcribing discharge prescriptions which are **not** then signed by the doctor at a later stage
- ☐<sub>3</sub> Transcribing in-patient drug charts which are then signed by the doctor at a later stage
- ☐<sub>4</sub> Transcribing in-patient charts which are **not** then signed by the doctor at a later stage
- ☐<sub>5</sub> Transcribing patients normal medication onto in-patient drug-charts at pre-admission clinics which is then signed by a doctor
- ☐<sub>6</sub> Transcribing patients normal medication onto in-patient drug-charts at pre-admission clinics which is **not** then signed by the doctor
- ☐<sub>7</sub> Prescribing medication at pre-admission clinics according to set protocols (dependent prescribing)
- ☐<sub>8</sub> Prescribing discharge medication at pre-admission clinics according to set protocols (dependent prescribing)
- ☐<sub>9</sub> Amend in-patient charts and discharge prescriptions via a prescription amendment policy (dependent prescribing/following agreed protocols)
- ☐<sub>10</sub> Independent prescribing
- ☐<sub>11</sub> Any other prescribing role (please provide more detail below)

.....  
.....  
.....

- ☐<sub>0</sub> None of these roles

- ❖ If you have answered “none of these roles”, or do not transcribe discharge prescriptions → GO TO QUESTION 6
- ❖ Otherwise → GO TO QUESTION 9

- ☐ <sub>1</sub> To assist junior doctors at very busy times (such as bed crises or winter pressures).
- ☐ <sub>2</sub> When items are missed off the prescription or a mistake has been made by the doctor/ improvement in chosen therapy etc. with the doctor's permission.
- ☐ <sub>3</sub> Other (please specify)  
.....  
.....

7.) If you do not currently employ pharmacists who transcribe discharge prescriptions, are there any plans within your hospital or trust-wide policies being developed to involve pharmacists in this role? If so, please estimate when you propose to implement this role.

- ☐ <sub>1</sub> The issue has been discussed but no decision has been made
- ☐ <sub>2</sub> There are no plans for such a development at the moment
- ☐ <sub>3</sub> We are currently investigating the development of this role and, we estimate that this role will be implemented at the hospital by (please provide an estimate date):  
.....  
.....

- ❖ If you have answered there are no plans to develop a pharmacist transcribing discharge prescriptions service → GO TO QUESTION 8
- ❖ Otherwise → GO TO THE FINAL PAGE.

8.) What are your reasons for not providing such a service at your hospital?

.....  
 .....  
 .....  
 .....

❖ **GO TO THE FINAL PAGE.**

### Section C: Transcribing discharge prescriptions

9.) What were your reasons for implementing a pharmacist discharge prescription service at your hospital?

.....  
 .....

.....  
 .....  
 10.) Is there a formal protocol at your hospital for pharmacists transcribing discharge prescriptions?

- ☐<sub>1</sub> Yes  
☐<sub>0</sub> No  
☐<sub>2</sub> In process of being drawn up  
☐<sub>3</sub> Other (please provide more detail)
- .....

*If you do have a protocol, I would be grateful if you would send me a copy. Even though the policy may identify your trust and/or people who have written the policy, please be assured that the information will be treated in strictest confidence. Please enclose the copy in the envelope when you return the questionnaire.*

11.) When did you implement pharmacists transcribing discharge prescriptions at your hospital? (Month/Year)

.....

12.) Please **tick the days** and **state the times** when the pharmacy transcription service is available:

Days of the week:	Times service is available: (e.g. 9.00-5.00)
<input type="checkbox"/> <sub>1</sub> Monday	
<input type="checkbox"/> <sub>2</sub> Tuesday	
<input type="checkbox"/> <sub>3</sub> Wednesday	
<input type="checkbox"/> <sub>4</sub> Thursday	
<input type="checkbox"/> <sub>5</sub> Friday	
<input type="checkbox"/> <sub>6</sub> Saturday	
<input type="checkbox"/> <sub>7</sub> Sunday	

13.) Which directorate(s) does your pharmacist discharge service cover? (tick more than one box if necessary)

- ☐<sub>1</sub> Medicine  
☐<sub>2</sub> Surgical  
☐<sub>3</sub> ALL wards in the hospital  
☐<sub>4</sub> Only on certain wards, not a whole directorate –please specify below
- .....  
 .....  
 .....

.....  
☐ <sub>5</sub> Other (please specify below)  
 .....  
 .....  
 .....

**14.) Who funds the discharge service pharmacists?**

<b>Funding Department(s)</b>	<b>No. of pharmacists</b>	<b>% funding by each department</b>
<input type="checkbox"/> <sub>1</sub> Pharmacy department alone		<b>100%</b>
<input type="checkbox"/> <sub>2</sub> Medical directorate alone		<b>100%</b>
<input type="checkbox"/> <sub>3</sub> Surgical directorate alone		<b>100%</b>
<input type="checkbox"/> <sub>4</sub> Medical directorate and Pharmacy department		/
<input type="checkbox"/> <sub>5</sub> Surgical directorate and Pharmacy department		/
<input type="checkbox"/> <sub>6</sub> Medical/Surgical/ Pharmacy department		/ /
<input type="checkbox"/> <sub>7</sub> Other (please specify below)		

**15.) On average/usually how many whole time equivalent pharmacists at each grade perform this role on a regular basis?**

A ..... E .....  
 B ..... F .....  
 C ..... G .....  
 D ..... Other .....

**16.) Which “model” do you base your pharmacist discharge service upon? (tick more than one box if necessary)**

- ☐ <sub>1</sub> Discharge pharmacists attend whichever ward bleeps them to write the discharge medication prescription
- ☐ <sub>2</sub> The ward pharmacist writes the discharge medication prescription for their own ward(s).
- ☐ <sub>3</sub> Medical discharge pharmacists attend whichever medical ward bleeps them to write the discharge medication prescription
- ☐ <sub>4</sub> Surgical discharge pharmacists attend whichever surgical ward bleeps them to write the discharge medication prescription
- ☐ <sub>5</sub> Other (please specify)
- .....

- .....
- .....
- |   |  |
|---|--|
| ❖ | <b>If you follow the ward pharmacist model → GO TO QUESTION 17</b> |
| ❖ | <b>Otherwise → GO TO QUESTION 18</b>                               |

17.) Does the pharmacist who is writing the discharge prescription attend the doctor's ward round?

- |   |  |
|---|--|
| <input type="checkbox"/> <sub>0</sub> No, never                                 | <input type="checkbox"/> <sub>3</sub> Occasionally (not necessarily each week) |
| <input type="checkbox"/> <sub>1</sub> Yes, consultant AND junior doctors rounds | <input type="checkbox"/> <sub>4</sub> Other (please specify below)             |
| <input type="checkbox"/> <sub>2</sub> Yes, consultant rounds only               |  |
- .....
- .....

18.) What medium is used by pharmacists to transcribe the discharge prescriptions?  
(tick more than one box if necessary)

- ☐ <sub>1</sub> Paper-based prescriptions
- ☐ <sub>2</sub> Computer-generated prescriptions (Please specify the name of the computer programme/system)
- .....
- .....

- ☐ <sub>3</sub> Other (Please specify details below)
- .....
- .....

19.) Does the doctor co-sign/clinically check the prescription prepared by the pharmacist at any time before the patient is discharged?

- ☐<sub>1</sub> Yes, always
- ☐<sub>2</sub> Yes, sometimes
- ☐<sub>0</sub> No

20.) Does the doctor sign the in-patient chart to indicate which drugs the patient should be sent home on? If not, please state whether the doctors indicate in any other manner which medication the patient is to be discharged upon.

- ☐<sub>0</sub> No
- ☐<sub>1</sub> Yes, always
- ☐<sub>2</sub> Yes, sometimes
- ☐<sub>3</sub> Other (please specify)

.....

.....

#### Section D Training:

21.) What further training, if any, do you stipulate for a pharmacist to perform the discharge service role? (please tick more than one box if necessary)

- |  |  |
|--|--|
| <input type="checkbox"/> <sub>1</sub> Post-graduate clinical certificate | <input type="checkbox"/> <sub>6</sub> 2 years clinical ward experience |
| <input type="checkbox"/> <sub>2</sub> Post-graduate clinical diploma     | <input type="checkbox"/> <sub>7</sub> 3 years clinical ward experience |
| <input type="checkbox"/> <sub>3</sub> MSc in clinical pharmacy           | <input type="checkbox"/> <sub>8</sub> In-house training programme      |
| <input type="checkbox"/> <sub>4</sub> Designation by a senior pharmacist | <input type="checkbox"/> <sub>0</sub> None                             |
| <input type="checkbox"/> <sub>5</sub> Other (please specify below)       |  |

.....

.....

22.) Have you designed a formal training programme to train pharmacists to write discharge medication prescriptions?

- ☐<sub>0</sub> We have no formal training programme



- ☐<sub>1</sub> We are currently developing a formal training programme
- ☐<sub>2</sub> We have a formal training programme

- ❖ If you do not have a formal training programme or are currently developing a training programme → GO TO QUESTION 23
- ❖ Otherwise → GO TO QUESTION 25

23.) Do you currently assess a pharmacist's competency to transcribe discharge medication prescriptions before the pharmacist starts this role?

- ☐<sub>1</sub> Yes
- ☐<sub>0</sub> No

- ❖ If you have answered yes → GO TO QUESTION 24
- ❖ Otherwise → GO TO QUESTION 27

24.) If you do assess the pharmacists competency, how do you do this?

.....

.....

.....

❖ GO TO QUESTION 27.

25.) What type of training does your formal training programme involve? (Tick more than one box if necessary)

- |  |  |
|--|--|
| <input type="checkbox"/> <sub>1</sub> Tutorials  | <input type="checkbox"/> <sub>4</sub> Supervised transcribing/prescribing of discharge prescriptions |
| <input type="checkbox"/> <sub>2</sub> Observation of pharmacists already performing the role | <input type="checkbox"/> <sub>5</sub> Examination or test  |
| <input type="checkbox"/> <sub>3</sub> External courses                                       | <input type="checkbox"/> <sub>6</sub> Other (please specify details below)                           |

.....

.....

*If you do have a formal training programme, I would be grateful if you could send me a copy. Even though the policy may identify your trust and/or people who have written the programme, please be assured that the information will be treated in strictest confidence. Please enclose the copy in the envelope when you return the questionnaire.*

**26.)** Is your training programme implemented throughout your trust or is it only used in your own hospital?

- ☐ <sub>1</sub> The training is used throughout the trust (at more than one hospital site)
- ☐ <sub>2</sub> The training is used in one hospital of the trust
- ☐ <sub>3</sub> Our hospital is the only acute hospital in the trust

**27.)** Do you currently re-assess the competency of pharmacists that are transcribing prescriptions on a regular basis, and if so, how often ?

- ☐ <sub>1</sub> Twice a year
- ☐ <sub>2</sub> Once a year
- ☐ <sub>3</sub> Once every 2 years
- ☐ <sub>4</sub> Never re-assess pharmacists competency
- ☐ <sub>5</sub> Not reached a decision yet
- ☐ <sub>6</sub> Other (please specify below)

.....

.....

- ❖ If you do re-assess pharmacist's competency → GO TO QUESTION 28
- ❖ Otherwise → GO TO QUESTION 29

**28.)** If competency is re-assessed, how is this done?

- |  |  |
|--|--|
| <input type="checkbox"/> <sub>0</sub> Complete whole of training programme again | <input type="checkbox"/> <sub>4</sub> Supervised transcribing/prescribing of discharge prescriptions |
| <input type="checkbox"/> <sub>1</sub> Tutorials                                  | <input type="checkbox"/> <sub>5</sub> Examination  |
| <input type="checkbox"/> <sub>2</sub> Observation of pharmacists already         | <input type="checkbox"/> <sub>6</sub> Other (please specify details below)                           |

- ☐ performing the role
- ☐ <sub>3</sub> External courses

.....

**Section E: Facts and figures:**

29.) Approximately, how many discharge prescriptions does a pharmacist write per day?

- |   |   |
|---|---|
| <input type="checkbox"/> <sub>1</sub> less than 5 | <input type="checkbox"/> <sub>5</sub> 21-25       |
| <input type="checkbox"/> <sub>2</sub> 5-10        | <input type="checkbox"/> <sub>6</sub> 26-30       |
| <input type="checkbox"/> <sub>3</sub> 11-15       | <input type="checkbox"/> <sub>7</sub> 31-35       |
| <input type="checkbox"/> <sub>4</sub> 16-20       | <input type="checkbox"/> <sub>8</sub> 36 or above |

30.) a.) What percentage of the total number of discharge prescriptions are written by pharmacists?

- |  |  |
|--|--|
| <input type="checkbox"/> <sub>1</sub> 1-10%  | <input type="checkbox"/> <sub>6</sub> 51-60%           |
| <input type="checkbox"/> <sub>2</sub> 11-20% | <input type="checkbox"/> <sub>7</sub> 61-70%           |
| <input type="checkbox"/> <sub>3</sub> 21-30% | <input type="checkbox"/> <sub>8</sub> 71-80%           |
| <input type="checkbox"/> <sub>4</sub> 31-40% | <input type="checkbox"/> <sub>9</sub> Greater than 80% |
| <input type="checkbox"/> <sub>5</sub> 41-50% | <input type="checkbox"/> <sub>10</sub> Don't know      |

30.) b.) Was this figure derived from known data or was it an estimate?

- ☐<sub>1</sub> Known data  
☐<sub>2</sub> Estimate

31.) Has the introduction of the pharmacy discharge service caused a reduction in the dispensing requirements out of hours and at weekends?

- ☐<sub>1</sub> Yes  
☐<sub>0</sub> No  
☐<sub>2</sub> Don't know

- ❖ If you have answered yes → GO TO QUESTION 32
- ❖ Otherwise → GO TO QUESTION 33

32.) a.) If you have found that the pharmacy discharge service has decreased out of hours and weekend dispensing requirements, by how much has the workload decreased?

- |   |  |
|---|--|
| <input type="checkbox"/> <sub>1</sub> 10% or less | <input type="checkbox"/> <sub>5</sub> 41-50%           |
| <input type="checkbox"/> <sub>2</sub> 11-20%      | <input type="checkbox"/> <sub>6</sub> 51-60%           |
| <input type="checkbox"/> <sub>3</sub> 21-30%      | <input type="checkbox"/> <sub>7</sub> 61-70%           |
| <input type="checkbox"/> <sub>4</sub> 31-40%      | <input type="checkbox"/> <sub>8</sub> Greater than 70% |

32.) b.) Was this figure derived from known data or was it an estimate?

- ☐<sub>1</sub> Known data  
☐<sub>2</sub> Estimate

33.) How many hours advance notice does the pharmacy department require prior to providing a pharmacist to write a discharge prescription?

☐ <sub>1</sub> Less than 1 hour

☐ <sub>2</sub> 1-2 hours

☐ <sub>3</sub> 3-4 hours

☐ <sub>4</sub> 5-6 hours

☐ <sub>5</sub> 7-8 hours

☐ <sub>6</sub> 24 hours

☐ <sub>7</sub> Other (please specify below)

.....  
.....

34.) I would be very interested to know whether your hospital has completed any in-house study or data collection to show whether pharmacist transcribed prescriptions improve error rate, timeliness or completeness of prescriptions when compared to those written by doctors. If you have, what did your results show?

.....  
.....  
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CONTINUED ON THE NEXT PAGE.....

**Comments/ Other information:**

**Thank you for taking the time to complete the questionnaire.** If you have any other comments upon pharmacist prescribing/transcribing of discharge prescriptions, then please write them in the space below.

.....  
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.....  
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.....  
.....

**Would you like a copy of the questionnaire results sent to you when it is published? (Please delete as applicable)**

Yes / No

If so, please provide an e-mail address (if possible):

.....

**Please check that you have included (where appropriate):**

- Copy of pharmacist discharge service protocol
- Copy of training programme

**Please contact me if you have any enquiries:**

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**STUDY NUMBER:** ..... (Office use only)

## **APPENDIX 4**



**A survey of Chief Pharmacist's views upon  
supplementary prescribing by nurses & pharmacists in  
England.**

**Instructions for completion:**

This survey should be completed by Chief Pharmacists working within hospital trusts.

I would estimate that this questionnaire should take between 15 to 20 minutes to complete.

Please tick one box for each question unless otherwise specified. If there is insufficient space provided for you to answer some of the questions then continue on a separate piece of paper indicating the question number clearly. (Please note the figures beside the tick boxes are for office use only.)

- Confidentiality for those participating in the survey & for those who wish to withdraw will be maintained at all times.
- Data processing will comply with the Data Protection Act 1998. All data will be held securely and access to the data will only be available to the researcher working on the project. All results and comments will be anonymised and although the aim is for the results to be published, no individuals will be identified.

When the questionnaire is completed please return it in the enclosed pre-paid envelope. Thank you.

For the purposes of this questionnaire, the following definition is applied:

**Supplementary prescribing:** "A voluntary partnership between an independent prescriber and a supplementary prescriber, to implement an agreed patient-specific clinical management plan with the patient's agreement"[1]

It is proposed that this type of prescriber will have responsibilities including:

- ❖ Monitoring & assessing the patient's progress as set out in the clinical management plan, & as appropriate to the medicines prescribed, including the reporting of any adverse reactions
- ❖ Contributing to the clinical management plan
- ❖ Prescribing for the patient in accordance with the agreed clinical management plan
- ❖ Changing the medicine prescribed, within the limits set out in the clinical management plan, if monitoring of the patient's progress indicates that this is clinically appropriate[2]



## **References:**

1. *Supplementary prescribing*. 2003, Department of Health. (WWW) <http://www.doh.gov.uk/supplementaryprescribing/> (February 12<sup>th</sup> 2003)
2. *Proposals for supplementary prescribing by nurses and pharmacists and proposed amendments to the prescription only medicines (human use) order 1997*. 2002, MCA: London. p. 1-19.

## **Section A : General Information**

**1.) How many years has it been since you gained your original professional qualification (MRPharm S)?**

☐<sub>1</sub> 5-10 years ago

☐<sub>4</sub> 21-25 years ago

☐<sub>2</sub> 11-15 years ago

☐<sub>5</sub> > 25 years ago

☐<sub>3</sub> 16-20 years ago

**2.) How many years have you been a Chief Pharmacist?**

☐<sub>1</sub> Up to one year

☐<sub>4</sub> 6-10 years

☐<sub>2</sub> 1-2 years

☐<sub>5</sub> 10-15 years

☐<sub>3</sub> 3-5 years

☐<sub>6</sub> 16 years and above

**3.) What type of hospital are you based at?**

☐<sub>1</sub> Teaching hospital

☐<sub>2</sub> District General Hospital

☐<sub>3</sub> Other (please specify) .....

**4.) How many in-patient beds are there in your trust?**

☐<sub>1</sub> 0-200

☐<sub>5</sub> 801-1000

☐<sub>2</sub> 201-400

☐<sub>6</sub> 1001-1500

☐<sub>3</sub> 401-600

☐<sub>7</sub> greater than 1500

☐<sub>4</sub> 601-800

**5.) How many whole time equivalent pharmacists are employed by your trust at each grade?**

**A** .....

**E** .....

**B** .....

**F** .....

**C** .....

**G** .....

**D** .....

**Other** .....

*Please turn over*

**6.)a.) Do pharmacists currently undertake “prescribing-type activities” in any format within your trust?** *(i.e. where the pharmacist is writing prescriptions for patients which may or may not be co-signed by a doctor)*

☐ <sub>1</sub> Yes

☐ <sub>0</sub> No

**b.) If yes, in what capacity?** *(e.g. writing discharge prescriptions, warfarin clinics, prescribing in outpatient clinics)*

.....  
.....  
.....

*Please turn over*

## **Section B: Implementation of supplementary prescribing**

### **Part A: PHARMACIST supplementary prescribing**

7.) Do you intend to implement supplementary prescribing (SP) by pharmacists within your trust by the end of 2005?

☐<sub>1</sub> Yes      ☐<sub>0</sub> No      ☐<sub>2</sub> Don't know      ☐<sub>3</sub> Yet to decide

*If you have answered no/don't know/yet to decide, go onto question 13, If you have answered yes go to question 8.*

8.) How many pharmacists do you intend to train/ will be trained as supplementary prescribers within your trust?

(or if you don't know tick the box: ☐)

During 2004:.....

During 2005:.....

9.) What grades of pharmacist(s) are you considering training as supplementary prescribers? *Tick all that apply*

☐ <sub>1</sub> Grade B

☐ <sub>4</sub> Grade E

☐ <sub>2</sub> Grade C

☐ <sub>5</sub> Grade F & above

☐ <sub>3</sub> Grade D

☐ <sub>6</sub> Other (*Please specify below*)

.....  
.....

10.) Describe the therapeutic area in which the supplementary prescribing by pharmacists will take place, & the conditions within that area for which the pharmacist will prescribe? (or if you don't know tick the box: ☐)

Therapeutic area & condition(s)
<i>e.g. Rheumatology, DMARD clinic</i>

*Please turn over*

11.) How would these service(s) be covered when the pharmacist is on annual leave/off sick? *(Tick more than one option if necessary)*

- ☐<sub>0</sub> By another pharmacist supplementary prescriber
- ☐<sub>1</sub> By a junior doctor (SHO)
- ☐<sub>2</sub> By a consultant
- ☐<sub>3</sub> By a nurse supplementary prescriber
- ☐<sub>4</sub> The service would not be covered
- ☐<sub>5</sub> Don't know
- ☐<sub>6</sub> Other (please specify below)

.....

.....

12.) Pharmacists taking on the supplementary prescribing role are taking on an increased risk & responsibility. As there is no applied therapeutics assessment within the SP training (e.g. A pharmacist who will be a supplementary prescriber in an asthma clinic will not be assessed upon their knowledge of asthma), do you have any additional requirements of pharmacists to become SP's (other than the SP course)?

*(Tick more than one box if necessary)*

- ☐<sub>1</sub> A period of experience in the clinical area chosen to prescribe in
- ☐<sub>2</sub> A general clinical postgraduate qualification (e.g. clinical diploma)
- ☐<sub>3</sub> A specialist postgraduate qualification in the area they are going to prescribe in. (e.g. psychiatric diploma)
- ☐<sub>4</sub> I have no other requirements
- ☐<sub>5</sub> CPD as per RPSGB requirements
- ☐<sub>6</sub> Other (please specify below)

.....

.....

#### Part B: NURSE supplementary prescribing

13.)a.) Do you already have qualified NURSE supplementary prescribers working within your trust at the moment?

- ☐<sub>1</sub> Yes
- ☐<sub>0</sub> No
- ☐<sub>2</sub> Don't know *(go to Q.14)*

*Please turn over*

b.) Describe the therapeutic area in which the supplementary prescribing by nurses is currently taking place & the conditions within that area for which the nurses are prescribing: (or if you don't know tick the box: ☐)

Therapeutic area & condition(s)
<i>e.g. Cardiovascular Disease, Hypertension clinic</i>

14.) Do you intend to implement supplementary prescribing (SP) by nurses within your trust by the end of 2005? (*extended nurse prescriber + supplementary prescriber course &/ or separate supplementary prescriber course*)

☐<sub>1</sub> Yes      ☐<sub>0</sub> No      ☐<sub>2</sub> Don't know      ☐<sub>3</sub> Yet to decide

*If you have answered no/don't know/yet to decide go to question 17, if you have answered yes go to question 15.*

15.) Describe the therapeutic area in which the supplementary prescribing by nurses will take place, and the conditions within that area for which they will prescribe? (or if you don't know tick the box: ☐)

Therapeutic area & condition(s)
<i>e.g. Palliative Care, Pain Control</i>

*If you need more space to describe other services please continue on the back of the questionnaire.*

16.) How would these service(s) be covered when the nurse is on annual leave/off sick? *(Tick more than one option if necessary)*

- |   |  |
|---|--|
| <input type="checkbox"/> <sub>1</sub> By another nurse supplementary prescriber | <input type="checkbox"/> <sub>4</sub> The service would not be covered |
| <input type="checkbox"/> <sub>2</sub> By a junior doctor (SHO)                  | <input type="checkbox"/> <sub>5</sub> Don't know                       |
| <input type="checkbox"/> <sub>3</sub> By a pharmacist supplementary prescriber  | <input type="checkbox"/> <sub>6</sub> Other (please specify below)     |

.....  
 .....

17.) What factors (if any) will affect the recruitment of designated medical practitioners (DMP)? *(Tick more than one option if necessary)*

- |   |  |
|---|--|
| <input type="checkbox"/> <sub>0</sub> DMP's workload  | <input type="checkbox"/> <sub>5</sub> Commitment & understanding of the SP role (by the DMP) |
| <input type="checkbox"/> <sub>1</sub> Perceived benefit to the DMP  | <input type="checkbox"/> <sub>6</sub> Lack of funding for the role                           |
| <input type="checkbox"/> <sub>2</sub> Time/availability to do the DMP role                                | <input type="checkbox"/> <sub>7</sub> There are no factors that affect recruitment           |
| <input type="checkbox"/> <sub>3</sub> Is there an established good working relationship between SP & DMP? | <input type="checkbox"/> <sub>8</sub> Other (Please specify below)                           |

.....  
 .....  
 .....  
 .....

18.) a.) In your own opinion, do you think it will be easier to recruit designated medical practitioners to mentor nurses rather than pharmacists?

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> <sub>1</sub> Yes | <input type="checkbox"/> <sub>0</sub> No | <input type="checkbox"/> <sub>2</sub> Don't know |
|---|--|--|

b.) Please explain your answer below:

.....  
 .....  
 .....  
 .....

## **Section C: Views on supplementary prescribing**

*Please indicate your views upon the following issues concerning supplementary prescribing (SP).*

		(Please tick the appropriate box)					
		Strongly agree	Agree	Uncertain	Disagree	Strongly Disagree	Not Applicable
19	There is a risk that SP's may not appreciate the significance of signs & symptoms that the patient declares to them during the consultation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20	Multiple prescribers, arising from the introduction of supplementary prescribing, will increase the prevalence of iatrogenic disease.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	Amongst other developments being undertaken within the NHS, development of SP by <b>PHARMACISTS</b> will be a priority within our trust.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	Amongst other developments being undertaken within the NHS, development of SP by <b>NURSES</b> will be a priority within our trust.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	Insufficient pharmacist resource will be a major limitation to development of pharmacist SP within secondary care.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	Lack of 24-hour opening of pharmacy departments will be a limitation to development of pharmacist SP.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*Please turn over*



		(Please tick the appropriate box)					Not Applicable
		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree	
25	Lack of assessment of applied therapeutics in the prescribing area means that the training model for SP is not sufficiently robust.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26	The paperwork & development of individual clinical management plans will be prohibitive to the development of SP.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27	The majority of pharmacists in secondary care do not wish to take on the SP role.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28	Reassessing and maintaining competency of SP pharmacists will limit the uptake of SP.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29	The designated medical practitioner should undergo prescribing training themselves before assessing the prescribing competency of SP trainees.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30	Pharmacists who currently transcribe discharge prescriptions should be trained as SP's to continue this role.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31	An employee SP should have their own indemnity insurance, as the trust's own vicarious liability may not be sufficient.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*Please turn over*

		(Please tick the appropriate box)					
		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree	Not Applicable
32	Non-SP pharmacists will regard themselves as “second class citizens” compared to prescribing colleagues.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33	The SP role will cause conflict with the pharmacist’s role of providing impartial advice to patients upon medicines.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34	In the future, I believe that it will be appropriate for undergraduate pharmacy students to qualify as SP’s when they graduate.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35	In secondary care, there will be more extensive uptake & use for pharmacists as INDEPENDENT prescribers rather than as supplementary prescribers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*Please turn over*

**Comments/ Other information:**

THANK YOU FOR TAKING PART IN THIS STUDY, YOUR TIME IS MUCH APPRECIATED.

**Any other comments upon supplementary prescribing?**

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.....

If you would you like a copy of the questionnaire results sent to you when it is published, then please complete the enclosed reply slip.

Please do contact me if you have any enquiries:

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## **APPENDIX 5**



**A survey of Primary Care Trust Pharmacist's views on  
supplementary prescribing by nurses & pharmacists in  
England.**

**Instructions for completion:**

This survey should be completed by Pharmaceutical Advisor Pharmacists working within primary care trusts.

I would estimate that this questionnaire should take between 15 to 20 minutes to complete.

Please tick one box for each question asked unless otherwise specified. If there is insufficient space provided for you to answer some of the questions then continue on a separate piece of paper indicating the question number clearly. (Please note the figures beside the tick boxes are for office use only.)

- Confidentiality for those participating in the survey & for those who wish to withdraw will be maintained at all times.
- Data processing will comply with the Data Protection Act 1998. All data will be held securely and access to the data will only be available to the researcher working on the project. All results and comments will be anonymised and although the aim is for the results to be published, no individuals will be identified.

Please return the completed questionnaire in the enclosed pre-paid envelope. Thank You.

For the purposes of this questionnaire, the following definition is applied:

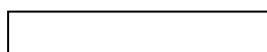
**Supplementary prescribing:** "A voluntary partnership between an independent prescriber and a supplementary prescriber, to implement an agreed patient-specific clinical management plan, with the patient's agreement"<sup>324</sup>

It is proposed that this type of prescriber will have responsibilities including:

- ❖ Monitoring and assessing the patient's progress as set out in the clinical management plan, and as appropriate to the medicines prescribed, including the reporting of any adverse reactions
- ❖ Contributing to the clinical management plan
- ❖ Prescribing for the patient in accordance with the agreed clinical management plan
- ❖ Changing the medicine prescribed, within the limits set out in the clinical management plan, if monitoring of the patient's progress indicates that this is clinically appropriate<sup>15</sup>

## **References:**

1. *Supplementary prescribing*. 2003, Department of Health. (WWW)  
<http://www.doh.gov.uk/supplementaryprescribing/> (February 12<sup>th</sup> 2003)
2. *Proposals for supplementary prescribing by nurses and pharmacists and proposed amendments to the prescription only medicines (human use) order 1997*. 2002, MCA: London. p. 1-19.



## **Section A: General Information**

**1.) How many years has it been since you gained your original professional qualification (MRPharm S)?**

☐ <sub>1</sub> <5 years

☐ <sub>2</sub> 5-10 years ago

☐ <sub>3</sub> 11-15 years ago

☐ <sub>4</sub> 16-20 years ago

☐ <sub>5</sub> 21-25 years ago

☐ <sub>6</sub> > 25 years ago

**2.) How many years have you been a primary care trust pharmacist?**

☐ <sub>1</sub> Up to one year

☐ <sub>2</sub> 1-2 years

☐ <sub>3</sub> 2-3 years

☐ <sub>4</sub> 3-4 years

☐ <sub>5</sub> 5-6 years

☐ <sub>6</sub> Other (Please specify below)

.....

**3.) How many whole time equivalent pharmacists work within your PCT?**

.....

**4.)a.) Do pharmacists currently undertake “prescribing-type activities” in any format within your trust?** *(i.e. where the pharmacist is writing prescriptions for patients which may or may not be co-signed by a doctor)*

☐ <sub>1</sub> Yes

☐ <sub>0</sub> No

☐ <sub>2</sub> Don't know

**b.) If yes, in what capacity?** *(e.g. warfarin clinic, medication review clinic)*

.....  
.....  
.....  
.....

## **Section B: Implementation of supplementary prescribing**

### **Part A: PHARMACIST supplementary prescribing**

5.) Do you intend to implement supplementary prescribing (SP) by pharmacists within your trust by the end of 2005?

☐<sub>1</sub> Yes      ☐<sub>0</sub> No      ☐<sub>2</sub> Don't know      ☐<sub>3</sub> Yet to decide

*If you have answered no/don't know/yet to decide, go onto question 11, if you have answered yes go to question 6.*

6.) How many pharmacists do you intend to train/ will be trained as supplementary prescribers within your trust?

(or if you don't know tick the box: ☐)

During 2004:.....

During 2005:.....

7.) What TYPE of pharmacist(s) are you considering training as supplementary prescribers? *Tick all that apply*

☐ <sub>1</sub> Community pharmacist(s)

☐ <sub>4</sub> PCT-based primary care pharmacists

☐ <sub>2</sub> GP practice-based pharmacists

☐ <sub>5</sub> Other (*Please specify below*)

☐ <sub>3</sub> Community services/Interface pharmacists (Hospital based)

.....  
.....  
.....

8.) Describe the therapeutic area in which the supplementary prescribing by pharmacists will take place, & the conditions within that area for which the pharmacist will prescribe? (or if you don't know tick the box: ☐)

Therapeutic area & condition(s)
<i>e.g. Renal Failure pts- Anaemia &amp; hypertension control</i>

*Please turn over*



9.) How would these service(s) be covered when the pharmacist is on annual leave/off sick? *(Tick more than one option if necessary)*

- |  |  |
|--|--|
| <input type="checkbox"/> <sub>0</sub> By a pharmacist supplementary prescriber | <input type="checkbox"/> <sub>3</sub> The service would not be covered |
| <input type="checkbox"/> <sub>1</sub> By a GP                                  | <input type="checkbox"/> <sub>4</sub> Don't know                       |
| <input type="checkbox"/> <sub>2</sub> By a nurse supplementary prescriber      | <input type="checkbox"/> <sub>5</sub> Other (please specify below)     |
| .....  |  |
| .....  |  |

10.) Pharmacists taking on the supplementary prescribing role are taking on increased risk & responsibility. **As there is no** applied therapeutics assessment **within the SP training** (e.g. a pharmacist who will be a supplementary prescriber in an asthma clinic will not be assessed upon their knowledge of asthma), **do** you have any additional requirements of pharmacists to become SP's (other than the SP course)? *(Tick more than one box if necessary)*

- |  |   |
|--|---|
| <input type="checkbox"/> <sub>1</sub> A period of experience in the clinical area chosen to prescribe in   | <input type="checkbox"/> <sub>4</sub> I have no other requirements  |
| <input type="checkbox"/> <sub>2</sub> A general clinical postgraduate qualification (e.g. clinical diploma)  | <input type="checkbox"/> <sub>5</sub> CPD as per RPSGB requirements |
| <input type="checkbox"/> <sub>3</sub> A specialist postgraduate qualification in the area they are going to prescribe in. (e.g. psychiatric diploma) | <input type="checkbox"/> <sub>6</sub> Other (please specify below)  |
| .....  |   |
| .....  |   |

#### Part B: NURSE supplementary prescribing

11.a.) Do you already have qualified nurse supplementary prescribers working within your trust at the moment?

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> <sub>1</sub> Yes | <input type="checkbox"/> <sub>0</sub> No | <input type="checkbox"/> <sub>2</sub> Don't know <i>(go to Q.12)</i> |
|---|--|--|

*Please turn over*

b.) Describe the therapeutic area in which the supplementary prescribing by nurses is currently taking place, & the conditions within that area for which the nurses are prescribing: (or if you don't know tick the box: ☐)

Therapeutic area & condition(s)
<i>e.g. Cardiovascular Disease, Hypertension control</i>

12.) Do you intend to implement or train more nurses as supplementary prescribers (SP) within your trust by the end of 2005? (*extended nurse prescriber + supplementary prescriber course &/ or separate supplementary prescriber course*)

☐<sub>1</sub> Yes      ☐<sub>0</sub> No      ☐<sub>2</sub> Don't know      ☐<sub>3</sub> Yet to decide

*If you have answered no/don't know/yet to decide go to question 16, otherwise go to question 13.*

13.) What TYPE of nurse(s) are you considering training as supplementary prescribers in YOUR trust? (*Tick all that apply*)

- |   |   |
|---|---|
| <input type="checkbox"/> <sub>1</sub> Practice-based nurses | <input type="checkbox"/> <sub>5</sub> School nurses                         |
| <input type="checkbox"/> <sub>2</sub> District nurses       | <input type="checkbox"/> <sub>6</sub> Community paediatric nurses           |
| <input type="checkbox"/> <sub>3</sub> Health visitors       | <input type="checkbox"/> <sub>7</sub> Don't know                            |
| <input type="checkbox"/> <sub>4</sub> Midwives              | <input type="checkbox"/> <sub>8</sub> Other ( <i>Please specify below</i> ) |

.....

14.) Describe the therapeutic area in which the supplementary prescribing by nurses will take place, and the conditions within that area for which they will prescribe? (or if you don't know tick the box: ☐)

Therapeutic area & condition(s)
<i>e.g. Respiratory medicine, Asthma control</i>

15.) How would these services be covered if the nurse is on annual leave/off sick? *(Tick more than one option if necessary)*

*Please turn over*

- |  |  |
|--|--|
| <input type="checkbox"/> <sub>0</sub> By a GP<br><input type="checkbox"/> <sub>1</sub> By a nurse supplementary prescriber<br><input type="checkbox"/> <sub>2</sub> By a pharmacist supplementary prescriber | <input type="checkbox"/> <sub>3</sub> The service would not be covered<br><input type="checkbox"/> <sub>4</sub> Don't know<br><input type="checkbox"/> <sub>5</sub> Other (please specify below) |
|--|--|

.....  
 .....

16.) Which PCT group or employee will be charged with taking forward PHARMACIST prescribing in your trust? *(Tick more than one option if necessary)*

- |  |   |
|--|---|
| <input type="checkbox"/> <sub>1</sub> PCT Non-medical prescribing group<br><input type="checkbox"/> <sub>2</sub> Clinical governance lead<br><input type="checkbox"/> <sub>3</sub> Medication management committee<br><input type="checkbox"/> <sub>4</sub> Pharmaceutical Adviser | <input type="checkbox"/> <sub>5</sub> Don't know<br><input type="checkbox"/> <sub>6</sub> Yet to be decided<br><input type="checkbox"/> <sub>7</sub> Other (please specify below) |
|--|---|

.....  
 .....

17.) Which PCT group or employee will be charged with taking forward NURSE prescribing in your trust? *(Tick more than one option if necessary)*

- |  |  |
|--|--|
| <input type="checkbox"/> <sub>1</sub> PCT Non-medical prescribing group<br><input type="checkbox"/> <sub>2</sub> Clinical governance lead<br><input type="checkbox"/> <sub>3</sub> Medication management committee<br><input type="checkbox"/> <sub>4</sub> Pharmaceutical Adviser | <input type="checkbox"/> <sub>5</sub> Director of nursing<br><input type="checkbox"/> <sub>6</sub> Don't know<br><input type="checkbox"/> <sub>7</sub> Yet to be decided<br><input type="checkbox"/> <sub>8</sub> Other (please specify below) |
|--|--|

.....  
 .....

*Please turn over*

**18.) What factors (if any) will affect the recruitment of designated medical practitioners (DMP) for SP trainees? (Tick more than one option if necessary)**

- |   |  |
|---|--|
| <input type="checkbox"/> <sub>0</sub> DMP's workload  | <input type="checkbox"/> <sub>5</sub> Commitment & understanding of the SP role (by the DMP) |
| <input type="checkbox"/> <sub>1</sub> Perceived benefit to the DMP  | <input type="checkbox"/> <sub>6</sub> Lack of funding for the role                           |
| <input type="checkbox"/> <sub>2</sub> Time/availability to do the DMP role                                | <input type="checkbox"/> <sub>7</sub> There are no factors that affect recruitment           |
| <input type="checkbox"/> <sub>3</sub> Is there an established good working relationship between SP & DMP? | <input type="checkbox"/> <sub>8</sub> Other (Please specify below)                           |

.....  
 .....  
 .....  
 .....

**19.) a.) In your own opinion, do you think it will be easier to recruit designated medical practitioners to mentor nurses rather than pharmacists?**

- ☐ <sub>1</sub> Yes                      ☐ <sub>0</sub> No                      ☐ <sub>2</sub> Don't know (*Go to Q.20*)

**b.) Please explain your answer below:**

.....  
 .....  
 .....  
 .....

## **Section C: Views on supplementary prescribing**

*Please indicate your views upon the following issues concerning supplementary prescribing (SP).*

		(Please tick the appropriate box)					
		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree	Not Applicable
20	There is a risk that SP's may not appreciate the significance of signs & symptoms that the patient declares to them during the consultation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	Multiple prescribers, as a result of the introduction of supplementary prescribing, will increase the prevalence of iatrogenic disease.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	Amongst other developments being undertaken within the NHS, development of SP by <b>PHARMACISTS</b> will be a priority within our trust.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	Amongst other developments being undertaken within the NHS, development of SP by <b>NURSES</b> will be a priority within our trust.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	Currently, poor IT links will limit the development of <b>community pharmacist SPs</b> .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25	Lack of assessment of applied therapeutics in the prescribing area means that the training model for SP is not sufficiently robust.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*Please turn over*

		(Please tick the appropriate box)					
		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree	Not Applicable
26	The paperwork & development of individual clinical management plans will be prohibitive to the development of SP.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27	The majority of pharmacists in primary care do not wish to take on the SP role.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28	Reassessing and maintaining competency of SP pharmacists will limit the uptake of SP.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29	The designated medical practitioner should undergo prescribing training themselves before assessing the prescribing competency of SP trainees.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30	An employee SP should have their own indemnity insurance, as the trust's own vicarious liability may not be sufficient.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31	Non-SP pharmacists will regard themselves as "second class citizens" compared to prescribing colleagues.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32	The SP role will cause conflict with the pharmacist's role of providing impartial advice to patients upon medicines.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(Please tick the appropriate box.)

**Strongly  
Agree**

**Agree**

**Uncertain**

**Disagree**

**Strongly  
Disagree**

**Not  
Applicable**

33 In the future, in my view, it will be appropriate for undergraduate pharmacy students to qualify as SP's when they graduate.

☐☐☐☐☐☐

34 In primary care, there will be more extensive uptake & use for pharmacists as INDEPENDENT prescribers rather than as supplementary prescribers.

☐☐☐☐☐☐

***Please turn over***

**Comments/ Other information:**

THANK YOU FOR TAKING PART IN THIS STUDY, YOUR TIME IS MUCH APPRECIATED.

**Any other comments upon supplementary prescribing?**

.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....

If you would you like a copy of the questionnaire results sent to you when it is published, then please complete the enclosed reply slip.

Please do contact me if you have any enquiries:

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## **APPENDIX 6**

**Topic guide for exploratory interview with clinical governance lead and co-ordinator**

1. Examine their understanding of the required training to become a pharmacist and their opinion of the quality of clinical knowledge that pharmacists have (based upon previous experiences)
2. Are they aware of pharmacists (or nurses) prescribing in any format within their trust?
3. What are their expectations of the extension of prescribing rights to **pharmacists** in secondary care?
4. What are their expectations of the extension of prescribing rights to **nurses** in secondary care?
5. What are the limitations of pharmacist prescribing? (e.g. insufficient resource, lack of 24hr opening of pharmacy dept., deskilling doctors etc.)
6. Do they think there will be any change to prescribing error rates?
7. Will they actively seek to develop pharmacist and /or nurse prescribing in their trust and if so, in which area(s)? /How will you prioritise/roll out pharmacist/nurse SP?
8. Do they have any preferences as to which grades of pharmacist/nurses should be prescribing?
9. Why do they think pharmacists (and nurses) want to (and do not want to) take this new role on?
10. How will they tackle the continuing education needs of prescribing pharmacists and nurses?
11. How will they tackle the reassessment and re-accreditation needs of prescribing pharmacists and nurses? (*How will they monitor and identify poor service?*)
12. Should doctors be accredited to prescribe and undergo some form of re-assessment?
13. Will there be any competition for financial support for nurses and pharmacists to train as supplementary prescribers in their trust (specifically re: replacement costs as training costs will be funded centrally)?
14. Ask their opinion upon specific prescribing scenarios for pharmacists (and nurses?) to evaluate how comfortable they are with supplementary prescribing in certain areas (e.g. writing discharge prescriptions, prescribing TPN, prescribing potassium supplements, adjusting vancomycin and gentamicin doses according to levels etc.)

## **APPENDIX 7**

Question		Statement	Strongly Agree		Agree		Uncertain		Disagree		Strongly Disagree	
No.			No. (%)		No. (%)		No. (%)		No. (%)		No. (%)	
1°	2°		1°	2°	1°	2°	1°	2°	1°	2°	1°	2°
20	19	There is a risk that SP's may not appreciate the significance of signs and symptoms that the patient declares to them during the consultation	1 (0.5)	2 (2.1)	51 (27.9)	31 (32.3)	28 (15.3)	19 (19.8)	<b>88</b> <b>(48.1)</b>	<b>37</b> <b>(38.5)</b>	15 (8.2)	7 (7.3)
21	20	Multiple prescribers, arising from the introduction of SP, will increase the prevalence of iatrogenic disease	0	2 (2.1)	18 (9.9)	11 (11.3)	51 (28)	<b>35</b> <b>(36.1)</b>	<b>82</b> <b>(45.1)</b>	33 (34)	31 (17)	16 (16.5)
22	21	Amongst other developments being undertaken within the NHS, development of SP by <b>PHARMACISTS</b> WILL be a priority within our trust	1 (0.5)	3 (3.1)	48 (26.4)	23 (23.7)	48 (26.4)	24 (24.7)	<b>64</b> <b>(35.2)</b>	<b>37</b> <b>(38.5)</b>	21 (11.5)	7 (7.3)
23	22	Amongst other developments being undertaken within the NHS, development of SP by <b>NURSES</b> WILL be a priority within our trust	17 (9.4)	4 (4.1)	<b>86</b> <b>(47.5)</b>	<b>44</b> <b>(45.4)</b>	42 (23.2)	28 (28.9)	34 (18.8)	19 (19.6)	2 (1.1)	2 (2.1)
25	25	Lack of assessment of applied therapeutics in the prescribing area means that the training model for SP is not sufficiently robust	19 (10.6)	10 (10.6)	57 (31.7)	23 (24.5)	<b>68</b> <b>(37.8)</b>	<b>28</b> <b>(29.8)</b>	29 (16.1)	27 (28.7)	7 (3.9)	6 (6.4)

### Questionnaire Section C statements

Question No.		Statement	Strongly Agree No. (%)		Agree No. (%)		Uncertain No. (%)		Disagree No. (%)		Strongly Disagree No. (%)	
1°	2°		1°	2°	1°	2°	1°	2°	1°	2°	1°	2°
26	26	The paperwork and development of individual clinical management plans will be prohibitive to the development of SP.	5 (2.8)	9 (9.5)	55 (31.1)	31 (32.6)	43 (24.3)	17 (17.9)	70 (39.5)	34 (35.8)	4 (2.3)	4 (4.2)
27	27	The majority of pharmacists in 1° /2° care do not wish to take on the SP role.	7 (4)	4 (4.2)	47 (26.7)	24 (25)	61 (34.7)	23 (24)	53 (30.1)	40 (41.7)	8 (4.5)	5 (5.2)
28	28	Reassessing and maintaining competency of SP pharmacists will limit the uptake of SP.	1 (0.6)	1 (1.1)	56 (31.5)	19 (20)	40 (22.5)	26 (27.4)	78 (43.8)	46 (48.4)	3 (1.7)	3 (3.2)
29	29	The designated medical practitioner should undergo prescribing training themselves before assessing the prescribing competency of SP trainees	16 (9)	13 (13.8)	77 (43.3)	37 (39.4)	25 (14)	15 (16)	56 (31.5)	27 (28.7)	4 (2.2)	2 (2.1)
30	31	An employee SP should have their own indemnity insurance, as the trust's vicarious liability may not be sufficient	20 (11.3)	6 (6.3)	72 (40.7)	16 (16.7)	50 (28.2)	15 (15.6)	29 (16.4)	36 (37.5)	6 (3.4)	23 (24)
31	32	Non-SP pharmacists will regard themselves as "second-class citizens" compared to prescribing colleagues.	2 (1.1)	1 (1)	13 (7.3)	7 (7.3)	35 (19.1)	17 (17.7)	104 (58.4)	54 (56.3)	24 (13.5)	17 (17.7)

#### Questionnaire Section C statements (cont)

Question No.		Statement	Strongly Agree No. (%)		Agree No. (%)		Uncertain No. (%)		Disagree No. (%)		Strongly Disagree No. (%)	
1°	2°		1°	2°	1°	2°	1°	2°	1°	2°	1°	2°
32	33	The SP role will cause conflict with the pharmacist's role of providing impartial advice to patients upon medicines	2 (1.1)	1 (1)	11 (6.2)	11 (11.5)	27 (15.3)	11 (11.5)	101 (57.1)	50 (52.1)	36 (20.3)	23 (24)
33	34	In the future, I believe that it will be appropriate for undergraduate pharmacy students to qualify as SP's when they graduate	25 (14)	6 (6.3)	63 (35.4)	21 (22.1)	7 (3.8)	11 (11.6)	46 (25.8)	33 (34.7)	37 (20.8)	24 (25.3)
34	35	In 1°/2° care, there will be more extensive uptake and use for pharmacists as INDEPENDENT prescribers rather than as supplementary prescribers.	47 (26.6)	25 (26)	76 (42.9)	37 (38.5)	40 (22.6)	20 (20.8)	13 (7.3)	10 (10.4)	1 (0.6)	4 (4.2)
24	-	Currently, poor IT links will limit the development of community pharmacist SPs.	98 (53.6)		72 (39.3)		4 (2.2)		7 (3.8)		2 (1.1)	
-	23	Insufficient pharmacist resource will be a major limitation to development of pharmacist SP within secondary care.		41 (42.3)		36 (37.1)		3 (3.1)		12 (12.4)		5 (5.2)
-	24	Lack of 24-hour opening of pharmacy departments will be a limitation to development of pharmacist SP.		10 (10.8)		23 (24.7)		8 (8.6)		39 (41.9)		13 (14)

#### Questionnaire Section C statements (cont)

Question No.	Statement	Strongly Agree No. (%)		Agree No. (%)		Uncertain No. (%)		Disagree No. (%)		Strongly Disagree No. (%)	
1°	2°	1°	2°	1°	2°	1°	2°	1°	2°	1°	2°
-	30	Pharmacists who currently transcribe discharge prescriptions should be trained as SP's to continue this role		10 (10.8)	20 (21.5)	10 (10.8)	40 (43)	13 (14)			

### Questionnaire Section C statements (cont.)

N. B. 1°= primary care. 2°= secondary care.

Missing Data: primary care n=58, secondary care n= 17

## **APPENDIX 8**



	Factors		
	1	2	3
SP's not knowing significance of symptoms q19		.528	
Sp will increase iatrogenic disease? q20		.733	
SP Pharmacists will be a priority in our trust q 21			.716
SP nurses will be a priority in our trust q22	-.354		.820
Insufficient pharmacist resource will be a limitation q23	.370	.472	
Lack of 24 hr opening hours will be a limitation q24		.520	
Lack of applied therapeutics assessment q25		.554	.392
Paperwork & CMP will be prohibitive q26	.560		
Pharmacists in secondary care do not want to be SP's q 27			.628
Reassessment & maintaining competency will limit SP q28	.692		
Mentor should undergo prescribing training q29	.599		
Discharge prescription prescribers as SP's? q30		.367	
Indemnity insurance required? q31			
Non-SP's as second-class citizens? q32	-.420	.490	
Conflict in impartial advice? q33		.606	
Undergraduates to qualify upon graduation? q34	.584		
Independent prescribing will be taken up more extensively q35	.369		

**Secondary care pattern matrix showing the factor loadings of each item on the extracted factors (following Oblique rotation using the Direct Oblimin method)**

N.B. Items with factor loadings less than +/- 0.3 have been removed for clarity

## **APPENDIX 9**

	Factors		
	1	2	3
Conflict with pharmacist providing impartial advice q32	.643		
Non-SP's as second-class citizens? q31	.476		
Poor IT links will limit the development of SP in community q24	.445		
IP will be more extensively uptaken than SP q34	.419		
Pharmacist SP will be a priority in the trust q22		.691	
Nurse SP will be a priority in the trust q23	-.469	.690	
Pharmacists in primary care do not wish to become SP's q27		.629	
Maintaining competency of SP pharmacists q28	.473	.564	
Undergraduates should qualify as SP upon graduation q33			
Lack of clinical assessment means SP training is not robust q25			.754
Paperwork & CMP will be prohibitive q26			.646
Ability of mentors to assess ability of SP's q29			.554
SP will increase iatrogenic disease q21	.325	.311	.466
SP's may not recognise the importance of symptoms q20			.312
Indemnity insurance q30			

**Primary care pattern matrix showing the factor loadings of each item on the extracted factors (following Oblique rotation using the Direct Oblimin method)**

N.B. Items with factor loadings less than +/- 0.3 have been removed for clarity

## **APPENDIX 10**

## **Topic Guide for Focus Group**

### **Section 1: Risks/Benefits/Implementation**

- Discuss the benefits of SP to the patient, the doctor, the SP and to the trust
- Discuss the implementation of SP (secondary care) and the associated risks/monitoring
  - Are the risks different to IP, are they different between nurses and pharmacists?
- How are the patients going to understand the role of the SP and who to contact when?
- Discuss what may happen if SP does not work- what will the DoH do?

### **Section 2: Mentors**

- Availability of mentors for pharmacists and nurses (factors affecting)
- Quality of mentors/accreditation (i.e. How do we know that the mentors are suitably skilled at prescribing themselves??)

### **Section 3: Liability**

- Professional liability in certain situations:
  - What if the diagnosis by the IP is wrong?
  - What if the CMP has an error upon it?
  - What if the IP signs off an SP but is not suitable themselves and then errors occur?
- Responsibility and accountability of SP in terms of their own performance?
- Effect upon prescribing error rate?

## **APPENDIX 11**

## Summary of focus group findings 9<sup>th</sup> April 2003.

### Interesting points....

- SP will be a major opportunity to improve rational prescribing
- If a pharmacist is involved in writing TTAs then they have to be engaged upstream, to the extent that they have to be part of the clinical team, they have to interact with the patient and discuss drug therapy with them, so writing the TTA becomes a part of the package of care that they are delivering
- **Negative view of SP: REALISING ONES OWN LIMITATIONS.** The accreditation package for pharmacists to become SP is essentially building upon their clinical competencies and at the present time, there is no mandatory requirement that a pharmacist that presents themselves for e.g. a paediatric pharmacist post or a mental health pharmacist post has to have a qualification. It is very much down to the pharmacist to recognise the code of ethics and I am not sure that this is enough for public protection.
- Clare disagreed with this, saying that this is not independent prescribing we are talking about. The key to reducing risk is the CMP.
- I think it will come down to knowing ones own limitations and being aware of them. My concern remains that a number of practitioners are blind to their own limitations, and do not refer back to the IP when they should do.
- Poor performance should be picked up by appraisal.
- **Negative view of SP: MISSING SIGNS and SYMPTOMS.** The SP may not appreciate the significance of signs and symptoms which the patient declares to them at consultation. I am comfortable with managing that in my particular environment where there is already a very close working relationship between the renal pharmacists and the renal consultants, they are next door to each other in the clinic, and so can go and ask them about any problems. (Clare thought that this would mean that the patient wasn't stable enough to be handed over to a SP in the first place)
- **Risk of SP: IATROGENIC DISEASE.** We may increase iatrogenic disease, because if you have got multiple prescribers and you get a breakdown in communication.... Also, people are living longer and this demographic of people are more prone to adverse drug reactions, so I think that increasing iatrogenic disease is a real risk. Unless we keep a tight focus on the patient's main clinical problems, and ensure that we are not adding to the complexity in terms of polypharmacy.
- **Risk of SP: ADVERSE INCIDENT REPORTING.** In the DoH document upon SP, in informing the NPSA, the independent prescriber is responsible. It should also be the responsibility of the SP to report adverse incidents.
- **Risk of SP: INDUSTRY-PRIVATE PARTNERSHIPS.** If we get sponsored SP's by the industry (as SP could impact on chronic disease management) you could have the Government saying to all trusts that you have to look at public and private sponsorship. The risk of industry seeing this as a way of bypassing doctors in terms of another route to their marketing their products and so much industry sponsorship which is to promote heavily their own drugs.
- **Negative view of SP:** I think there are issues for prioritising developments within secondary care. We are expected to deliver in terms of NHS plan, pharmacy in the future, Spoonful of sugar and the NSF's. SP is not a must do for secondary care, it is a may do and it may help so I think I am in a position

of trying to develop a service and I have limited funding, where do I prioritise my resources?? It is a good professional opportunity to grasp, but if I was faced with having to choose between resourcing another specialist pharmacist in an area where I do not have one or rolling out SP, I know where I'd go.

- **Funding:** The training has actually been underfunded by the Government. You couldn't get 40 days training in the private sector for £500; a tenner a day. Also there is no funding for the mentor
- **Prooving cost-effectiveness:** Is that another issue? –Clare didn't seem to think that making an economic case was one of the bigger problems-the following seemed more important:
- **Evaluating patient's thoughts:** It's who takes responsibility and who is accountable in terms of the process of care and I think that's what we need to validate within the new system, because patients views might be different when they think the buck stops with you. Research still needs to validate how does the patient feel about the fact that you are not referring back to the doctor, because that might change their attitude to their care as well.
- **Problems with SP: MENTORS ABILITY TO ASSESS.** I think there's a big assumption there on the basis that an independent prescriber would actually be able to assess the competency of the other healthcare professional who came from a different background to them and I'm not sure that they could.
- **Potential further research:** I would like a researcher to set up a model and talk to the local cardiac unit, who were looking to set up a model whereby the point of diagnosis of hypertension, so that he can randomise them into receiving GP care or non-medical prescribing care and actually look to see outcomes from both groups. Do they actually manage to get them to commit to compliance, because we actually allow the patient greater choice in therapy options.
- **Problems with SP: POOR INDEPENDENT PRACTITIONERS.** I think one of the issues for me is when things go wrong in terms of liability. E.g. SP is supposed to be a voluntary thing. What if a pharmacist is pressurised to become a SP to work with an IP who is a poor practitioner in order to improve their prescribing skills. There is a clinical governance issue in that if you are offered dodgy plans, how do you report that, how do you deal with it so that their practice can be improved? –Especially a problem with single-handed GP practices where they are away from peer review.
- **Problems with SP: SECOND-RATE CARE?** If SP stick to very conservative CMP's, until they've got an evidence base to support it people play safe, and there is a risk that it may delay the introduction of new drugs that are clinically effective. Therefore it is very important for SP's to prescribe black triangle drugs.
- **Problems with SP: INTRA-PROFESSIONAL ISSUES.** Pharmacists who are not SP's may become to regard themselves as second class citizens. I think there is a whole load of issues within the profession about how this is going to pan out. Is everybody going to be aspirational to be a SP?
- **Problems with SP: LIABILITY.** My worry is that the SP may be quite naïve and everybody else covers their own back & the SP is left exposed. I think it is so important that some of the prescribers not only have indemnity in place but independent solid legal advice so that they are not dependent upon the trust. The trust may have it covered in terms of patients claiming compensation, but they haven't got it covered if you are in a box being accused of manslaughter.



I think that that is a view that has never been discussed properly within the profession and that's where there's a lack of leadership. We need to know that if an incident happens it is known what to do and have a witness present, have some standard procedures so you do not have someone shifting the blame, because we will not learn from that, they will not reflect on poor practice.

- **Future research:** Clare thinks that having a multi-centre study with 5 hospitals that do not have pharmacists prescribing discharge prescriptions and 5 that do will be very difficult to control as I will not be able to retain my control hospitals. It just will not fit in with national policies about reducing waiting times and speeding up discharge. There will be a dictat. I do not think it will be voluntary, as you state. I think that once SP is in place, I could see a document coming out for hospitals advising them to implement SP for discharge prescriptions. I could see them being forced in earlier than that without allowing you to follow up with your contaminated group.

## **APPENDIX 12**

<b>Patient no.</b>	<b>Gender</b>	<b>Age</b>	<b>Location of Interview</b>	<b>Prescriber</b>	<b>Clinical Condition</b>
1	F	66	GP practice	GP	Hypertension
2	F	78	GP Practice	GP	Hypertension
3	F	79	GP Practice	GP	Hypertension
4	F	62	GP Practice	GP	Hypertension
5	M	50	GP Practice	GP	Hypertension
6	F	59	Hospital-Oncology Outpatient's	Consultant	Gastrointestinal Cancer
7	M	77	Hospital-Oncology Outpatient's	Consultant	Gastrointestinal Cancer
8	M	76	Hospital-Oncology Outpatient's	Consultant	Gastrointestinal Cancer
9	M	59	Hospital-Oncology Outpatient's	Consultant	Gastrointestinal Cancer
10	M	57	Hospital-Oncology Outpatient's	Consultant	Gastrointestinal Cancer
11	M	74	GP practice	Pharmacist Supplementary Prescriber	Hypertension
12	M	56	GP practice	Pharmacist Supplementary Prescriber	Hypertension
13	M	81	GP practice	Pharmacist Supplementary Prescriber	Hypertension
14	M	52	GP practice	Pharmacist Supplementary Prescriber	Hypertension
15	M	42	GP practice	Pharmacist Supplementary Prescriber	Hypertension
16	F	63	Hospital-Education Centre	Pharmacist Supplementary Prescriber	Gastrointestinal Cancer
17	F	67	Hospital-Education Centre	Pharmacist Supplementary Prescriber	Gastrointestinal Cancer
18	M	61	Hospital-Education Centre	Pharmacist Supplementary Prescriber	Gastrointestinal Cancer

**Participant demographics in the qualitative interviews**

## **APPENDIX 13**

Contact	Practice	Add 1	Add 2	Add 3	Postcode	PCT
Dr T Kemple	Horfield Health Centre	Lockleaze Road	Horfield	Bristol	BS7 9RR	Bristol North
Dr H Lupton	The Malago Surgery	40 St Johns Road	Bedminster	Bristol	BS3 4JE	Bristol South and West
Dr J Victory	Bradgate Surgery	Ardenton Walk	Brentry	Bristol	BS10 6SP	Bristol North
Dr C Whybrew	Portishead Health Centre	Victoria Square	Portishead		BS20 9AQ	North Somerset
Dr R Taylor	Shirehampton Health Centre	Pembroke Road	Shirehampton	Bristol	BS11 9SB	Bristol North
Dr D Kessler	Gaywood House Surgery	North Street	Bedminster	Bristol	BS3 3AZ	Bristol South and West
Dr R Jobanputra	Southmead Health Centre	Ullswater Road	Southmead	Bristol	BS10 6DF	Bristol North
Dr D Cox	Brockway Medical Centre	8 Brockway	Nailsea	Bristol	BS48 1BZ	North Somerset
Dr M Barber	Lawrence Hill Health Centre	Hassell Drive	Bristol		BS2 0AN	Bristol North
Dr A Wickert	St George Health Centre	Bellevue Road	St George	Bristol	BS5 7PH	Bristol North
Dr W House	St Augustines Surgery	4 Station Road	Keynsham	Bristol	BS31 2BN	Bath and North East Somerset
Dr A Sephton	Oaks Medical Practice	Cadbury Heath Health Centre	Parkwall Road	Bristol	BS30 5HS	South Gloucestershire
Dr F Ormerod	The Surgery	Northwick Road	Pilning	Bristol	BS32 4JE	South Gloucestershire
Dr U Freudenstein	The Family Practice	Western College	Cotham Road	Bristol	BS6 6DF	Bristol South and West
Dr J Clement	Gloucester Road Medical Centre	Tramway House	1a Church Road	Bristol	BS7 8SA	Bristol North
Dr C Yerbury	Grange Road Surgery	William Budd	Bristol		BS13 8LD	Bristol South and West
Dr I Crofton-Briggs	The Merrywood Practice	Health Centre	Knowle West Health Park	Downton Rd	BS41 1WH	Bristol South and West
Dr K Hearn	Montpelier Health Centre	Bath Buildings	Montpelier	Bristol	BS6 5PT	Bristol North
Dr M Hoghton	Clevedon Health Centre	Old Street	Clevedon		BS21 6DG	North Somerset
Dr H Stoddart	Kingswood Health Centre	Alma Road	Kingswood	Bristol	BS15 4EJ	South Gloucestershire
Dr J Wood	Woodside Practice	Brooklea Health Centre	Wick Road	Brislington	BS4 4HU	Bristol South and West
Mr S Mowatt	The Lennard Surgery	1 Lewis Road	Bedminster Down	Bristol	BS13 7JD	Bristol South and West
Dr M Rossdale	Pembroke Road Surgery	111 Pembroke Road	Clifton	Bristol	BS8 3EU	Bristol South and West
Dr D Bailey	Hanham Surgery	33 Whittucks Road	Hanham	Bristol	BS15 3HY	South Gloucestershire
Dr C Parfitt	Clevedon Medical Centre	Old Street	Clevedon		BS21 6DG	North Somerset

**Research practices in Bristol that get paid to take part in and host research projects**

## **APPENDIX 14**

Pharm	Nurse	Section 1: <i>Previous experiences with Pharmacists/Nurses</i>	Prompt
		What previous experience you have had of pharmacists/ <i>nurses</i> ?	Situations where you have come across them, in a pharmacy/ <i>GP practice</i> or in hospital. <i>MURs with pharmacists??? BP monitoring?</i>
		Is the local pharmacist/ <i>nurse</i> helpful?	Have you received any advice/ <i>appointment</i> from them about OTCs or POMs <i>diet/footcare/contraception</i> before? Do you consider them to be a health care professional? Do you consider them to be an expert/ <i>knowledgeable</i> on medicines? Have you ever had a pharmacist pick up an error/mistake on your prescription or <b>make a mistake on your prescription?</b>
		Explain what you think pharmacists/ <i>nurses</i> do day to day?	Is there a difference between pharmacists that work in a chemist shop/ <i>GP practice</i> & those that work in hospital? Do they have the same qualifications?
		What is your opinion of pharmacists/ <i>nurses</i> ?	How do they compare to doctors and nurses/ <i>pharmacists</i> ? Who do you have a better relationship with?
xxxxx	xxxxx	<b>Primary Care:</b> Have you had any OP appts in secondary care?- If so, who with? <b>Secondary Care:</b> Ask about GP appts, nurse/pharm appts	Who they have generally had appts. with in other sector- healthcare background
	xxxxx	Tell me about your experience of having medication(s) prescribed for you by the pharmacist SP?	
	xxxxx	How often have you seen the SP?	
	xxxxx	Are there any advantages to seeing the SP?	Good points- quicker access, longer appointments, easier to talk to?
	xxxxx	Are there any disadvantages to seeing the SP?	Bad points- not the same as seeing a doctor, certain things you would rather see a doctor for?
	xxxxx	Does it bother you that you didn't get to see the GP? ( <i>Ask about responsibility</i> )	How does it make you feel seeing the SP rather than the GP?
		<b>Section 2: <i>Pharmacist/Nurse Prescribing</i></b>	<b>Prompt</b>
		What do you think about pharmacists/ <i>nurses</i> being able to prescribe medicines?	Initial thoughts for/against Is it s good development?
	xxxxx	Pharmacists would be able to prescribe all medicines you can buy OTC in chemists and all POM medicines, including drugs for your heart, chemotherapy etc as independent prescribers. How do you feel about this? -Quite a broad range	Do you think that pharmacists are capable of prescribing all types of medicines?
xxxxxx		<i>Nurse prescribers are able to prescribe all medicines you can buy OTC in chemists and some POM medicines, including antibiotics for certain conditions. Are you happy about this?</i>	Do you think that nurses are capable of prescribing all types of medicines? Is their drug knowledge sufficient?
	xxxxx	Pharmacists that independently prescribe may also diagnose conditions- what do you think about this? e.g. <i>chesty cough vs hypertension</i>	What is diagnosis? Do you think pharmacists are capable of diagnosing?

Pharm	Nurse	Section 2: continued	Prompt
		If a pharmacist/ <i>nurse</i> independent prescriber prescribed a medicine for you who do you think would be responsible for that decision?	Would you see your GP/consultant as being in ultimate charge of your care? How would the Dr know what had been prescribed for you?
		Do you think there are there any <u>advantages</u> to the implementation of independent prescribing by pharmacists/ <i>nurses</i> ?	Increased accessibility to healthcare? Proper use of their skills? Longer consultations? Easier to talk to than the doctor?
		Do you think there are any <u>disadvantages</u> ( <u>concerns</u> ) to the implementation of independent prescribing by pharmacists/ <i>nurses</i> ?	Do you think it is a safe system for patients? How would the performance of the pharmacist or nurse prescriber be checked? How do the pharmacists & nurses keep up to date? e.g. Pt may have a doctor, Nurse & Pharmacist prescribing for them
		The pharmacist/ <i>nurse</i> may need to do a physical examination before making a diagnosis and prescribing for the patient, how do you feel about this?	Would it make any difference to you if it was a male/female pharmacist/nurse? In primary care may be a separate room in the pharmacy/shop
		For pharmacists/ <i>nurses</i> to prescribe they will need to have full access to your medical records, would you be happy about this?	?Different levels of access according to the level of severity of the condition
		Do you think it is <u>necessary</u> for pharmacist's/ <i>nurses</i> to be able to prescribe independently	Will it enable pharmacists/ <i>nurses</i> and doctors to work better? Would there be a demand for it?
		Would you utilize a pharmacist/ <i>nurse</i> independent prescriber service if your local GP practice or hospitals offered such a service?	E.g. Hypertension clinic/ chemotherapy clinic- <i>ask specifically in site 2 about a pharm. Prescribing chemo!!</i>
	xxxxxx	Do you think your experience of being a patient of a pharmacist SP has affected your opinion on the development of IP for pharmacists?	Has it eased your mind of any concerns you might have had?
		<b>Section 3: General Questions</b>	<b>Prompt</b>
xxxxxx	xxxxx	Would you want to be asked if it was okay to have a pharmacist or nurse prescribe for you before you actually saw them?	How would you want this consent to be obtained –verbal/written in medical notes & signed by patient?
xxxxxx	xxxxx	What do you think are the biggest barriers/hurdles to the implementation of independent prescribing?	Acceptability to patients? Good communication links between the different prescribers? Do you think it will work well in practice?
xxxxxx	xxxxxx	Do you have any preferences between seeing a pharmacist or a nurse prescriber? Explain why.	Are there any groups of people you think may not want to see a nurse or pharmacist prescriber?
xxxxxx	xxxxxx	Do you think that there are certain areas of prescribing that might be more suited to each health care profession? -give examples?	E.g. Nurses only should prescribe dressings, doctors only should prescribe chemotherapy etc.

Age= \_\_\_\_\_  
Travel expenses?

Do they want a copy of the final report? \_\_\_\_\_



## APPENDIX 15

N.B. The publications provided in this appendix are copies of the final word versions of the papers/abstracts that the journals published. The final published versions have not been included as I was unable to convert pdf files into word files of sufficient quality (needed for electronic submission of this thesis) using software programmes that were purchased for this purpose. Scanning of the published papers did also not produce versions of sufficient legibility and quality. Therefore a list of the published references is provided below:

1. Hobson RJ, Sewell GJ. UK survey of discharge prescriptions, transcribing & development of the hospital pharmacist-prescribing role. *International Journal of Pharmacy Practice* 2002;10 (Suppl)(September 2002):R12.
2. Hobson RJ, Sewell GJ. Factors influencing provision of pharmacist discharge prescription transcription services & authorisation requirements of pharmacist-written prescriptions. *International Journal of Pharmacy Practice* 2002;10(suppl)(September 2002):R62.
3. Hobson RJ, Sewell GJ. A national survey of pharmacist transcribing of discharge prescriptions. *The International Journal of Pharmacy Practice* 2003;11:89-95.
4. Hobson RJ, Sewell GJ. Responsibility, accountability & factors influencing provision of pharmacist transcription of discharge prescriptions. *The International Journal of Pharmacy Practice* 2004;12:163-168.
5. Hobson RJ, Sewell GJ. Supplementary prescribing by pharmacists in England. *American Journal of Health Systems Pharmacy* 2006;63:244-53.
6. Hobson RJ, Sewell GJ. Risks and concerns about supplementary prescribing: Survey of primary and secondary care pharmacists. *Pharmacy World and Science* 2006;28:76-90.
7. A survey of nurse supplementary prescribing implementation in primary and secondary care in England. 12th Health Services Research and Pharmacy Practice Conference; 2006 3rd and 4th April 2006; University of Bath. Royal Pharmaceutical Society of Great Britain, London.
8. Hobson RJ, Scott JA. A qualitative evaluation of patient opinion on pharmacist and nurse independent prescribing. *International Journal of Pharmacy Practice* 2007;15(3):B41-42.

## **UK survey of discharge prescriptions, transcribing & development of the hospital pharmacist-prescribing role.**

By R.J. Hobson\*† and G.J. Sewell\*‡

\*Department of Pharmacy and Pharmacology, University of Bath; †Swindon & Marlborough NHS Trust; ‡Plymouth Hospitals NHS Trust

**Introduction** The Audit Commission's report "A spoonful of sugar"<sup>1</sup> has identified the pharmacist as a central figure in medicines management. This report echoes recommendations in the Crown Report<sup>2</sup>, which advocated the extension of prescribing rights to pharmacists.

Within secondary care, some pharmacists are already prescribing dependently, the most common role being transcribing of discharge prescriptions.<sup>3,4</sup>

Reported advantages of pharmacist discharge prescription transcription services (PDPTS), include increased number of pharmacist interventions, increased prospective interventions, decreased prescription turnover time, cost savings by using patient's own drugs (POD's), decreased out of hours work for the pharmacy department, decreased prescription error rate compared to doctors and releasing doctor & nurse time.<sup>3,4</sup>

A recent study established that one third of 162 hospital trusts surveyed involved pharmacists in writing discharge prescriptions, but their overall impact on the total number of prescriptions being written was negligible.<sup>5</sup>

A questionnaire was therefore developed to further explore Sexton's findings, and to identify other pharmacist prescribing roles.

**Method** The questionnaire was developed after literature review and visits to hospitals running PDPTS. It contained open & closed questions. Face-to-face interviews with pharmacists were used for validation. Single hospitals in each UK NHS Trust were identified using the UK Drug Information Pharmacists' Group Directory and the Chemist & Druggist Directory. Ambulance trusts, learning disabilities trusts and community hospitals were excluded.

It was piloted in 20 randomly selected hospitals (July 2001), and then distributed (August 2001). It was addressed to the Chief Pharmacist, Principle pharmacist or Clinical Services Manager according to the name found.

Responses were coded and analysed using the Statistical Package for the Social Sciences (SPSS) version 10.

**Results** The questionnaire was sent to 206 NHS trusts, and the response rate was 66% (135/206). 49/135 (36%) of hospital pharmacy departments (HPD) who responded were offering PDPTS.

Prescribing activities included pharmacist prescription amendment (n=39, 29%), prescribing activity in pre-admission clinics (n=24, 18%) and re-writing drug charts (n=20, 16%). Fifty-nine HPD's (44%) did not undertake any prescribing activity.

Amongst those HPDs that do not transcribe, 68.6% (n=59/86) undertake no prescribing activities (Range= 0 to 3). Amongst those that do transcribe, there was a wider range in the number of prescribing activities undertaken (Range= 1 to 8), median =3, n=13/49 (26.5%).

There was a tentative relationship between the total number of pharmacists employed at a hospital and the total number of pharmacist prescribing activities (correlation coefficient= 0.208, p= 0.018).

Typically, the service operated from 9am to 5pm Monday to Friday (n=32, 68.1%), and most frequently serviced the medical directorate (n=24, 51.1%), followed by the surgical directorate (n=17, 36.2%).

The service was normally funded by the pharmacy department (n=28, 58.3%), and mainly operated by C & D grade pharmacists.

The most frequently used model of service was pharmacists writing the discharge prescriptions for their own wards (n=38, 77.6%).

Typically one (n=7) or two (n=8) pharmacists ran the service, and each pharmacist produced less than 5 prescriptions per day (n=25, 52.1%).

**Discussion** The results of this survey show that the majority of HPDs who run a PDPTS are not having a large impact on the overall number of discharge prescriptions being written in the hospital. This agrees with Sexton's results.<sup>5</sup> The results suggest that manpower is a key obstacle in the provision of PDPTS and other pharmacist prescribing roles. HPDs could seek financial support for extension of prescribing services from other directorates and also funding for nurses & doctors.

A limitation of this study is it would have been preferable to send the questionnaire to every UK hospital as opposed to one per trust.

Future research should determine the attitudes of other healthcare professionals and patients to pharmacists becoming supplementary and independent prescribers, as support within a multidisciplinary team is key in effective implementation.

### **References:**

1. A spoonful of sugar -Medicines management in NHS hospitals: Audit Commission, 2001.
2. Review of prescribing, supply and administration of medicines, final report: Department of Health, 1999.
3. Boorman S, Cairns C. Another way forward for pharmaceutical care: a team-based clinical pharmacy service. *The Pharmaceutical Journal* 2000;264:343-346.
4. Cattell R, Conroy C, Sheikh A. Pharmacist intergration into the discharge process: a qualitative and quantitative impact assessment. *The International Journal of Pharmacy Practice* 2001;9:59-64.
5. Sexton J, Ho YJ, Green CF, Caldwell NA. Ensuring seamless care at hospital discharge: a national survey. *Journal of Clinical Pharmacy and Therapeutics* 2000;25:385-393.

## Factors influencing provision of pharmacist discharge prescription transcription services (PDPTS) and authorisation requirements of pharmacist-written prescriptions.

By R.J. Hobson\*† and G.J. Sewell\*‡

\*Department of Pharmacy and Pharmacology, University of Bath; †Swindon & Marlborough NHS Trust; ‡Plymouth Hospitals NHS Trust

**Introduction** Recent reports describe the development of pharmacists transcribing discharge prescriptions,<sup>1 2</sup> but there is no published information on factors influencing the decision whether or not to provide this service.

Anecdotal evidence suggests conflicting opinion upon the issue of whether a medical practitioner should be legally required to co-sign a prescription that is written by a pharmacist.

A survey was distributed to one acute hospital from each UK NHS Trust to examine these two issues.

**Method** The questionnaire was developed after literature review and visits to hospitals running PDPTS. It contained open & closed questions. Face-to-face interviews with pharmacists were used for validation. Single hospitals in each UK NHS Trust were identified using the UK Drug Information Pharmacists' Group Directory and the Chemist & Druggist Directory. Ambulance trusts, learning disabilities trusts and community hospitals were excluded.

It was piloted in 20 randomly selected hospitals (July 2001), and then distributed (August 2001). It was addressed to the Chief Pharmacist, Principle pharmacist or Clinical Services Manager according to the name found.

Responses were coded and analysed using the Statistical Package for the Social Sciences (SPSS) version 10.

**Results** 135/206 (66%) pharmacists responded. 49/135 (36%) reported that they were offering PDPTS.

The most frequently cited reason for **not** implementing a transcription service was insufficient resources n=18, followed by developing other services in preference to PDPTS n=7. Other reasons given were no plans/discussion (n=6), lack of funding (n=5), electronic prescribing development will make PDPTS redundant, considered an administrative role and that it was for the doctor's benefit only.

The most common reason **for** implementing a transcribing service was to reduce delays in the discharge process (72.9% n=35), followed by improved accuracy/decreased errors/improved quality (50% n=24). Other reasons included release of junior doctor time (33.3% n=16), increased efficiency, cost savings from re-use of patient's own drugs, enhanced pharmacist's role, improved communications with primary care, decreased duplicate

prescribing, save nursing time, enhanced counselling opportunities, risk management and improved patient care.

Teaching hospitals employed more pharmacists (Chi-squared= 21.5, df=2, Asymp. Sig. = 0.000) and offered transcription services more frequently (48.6%) than District General Hospitals (33.7%).

The majority of HPD's ask the doctor to co-sign the pharmacist written prescriptions (n=31, 64.6%), however 10 HPD's (20.8%) did not and 7 HPD's (14.6%) said that they sometimes did (1=missing data). The HPD's that did not ask the doctor to co-sign often asked the doctor to indicate in another manner that the prescription was required. Two HPD's always had the in-patient drug chart signed by the doctor (2 HPD's sometimes did this), 3 HPD's used verbal authorisation and 1 HPD used a separate authorisation form. Two HPD's did not ask the doctor to authorise the prescription in any other manner.

**Discussion** A main reason for not having PDPTS was lack of resources (n=18), this opinion would appear to be justified from the results. The most common reasons found in this study supporting the provision of PDPTS have also been proposed in published literature.<sup>1,2</sup>

If the pharmacist is writing the discharge prescription, there is a risk management issue, as the pharmacist is no longer performing the clinical check role. Some hospitals have overcome this issue by swapping the prescribing and checking roles with the doctor.<sup>1,3</sup>

This survey has shown that there is no consensus on authorisation requirements. Anecdotal evidence from this survey suggests that using the doctor as a second clinical check when the prescription is co-signed was not successful. The value of signatures on in-patient drug charts has also been questioned. The in-patient drug chart is not a prescription, but the authority to administer a medicine. Cousins & Luscombe have suggested that as long as the authority to administer each drug can be traced back to either a written protocol or a general practitioner, is there an absolute requirement to have a doctor countersign the items on the inpatient chart?<sup>4</sup> This theory could also be extended to the discharge prescription. Until legislation is changed to permit pharmacists to be supplementary prescribers, this issue will remain unresolved.

A limitation of this study is it would have been preferable to send the questionnaire to every UK hospital as opposed to one per trust.

#### References:

1. Boorman S, Cairns C. Another way forward for pharmaceutical care: a team-based clinical pharmacy service. *The Pharmaceutical Journal* 2000;264:343-346.
2. Cattell R, Conroy C, Sheikh A. Pharmacist intergration into the discharge process: a qualitative and quantitative impact assessment. *The International Journal of Pharmacy Practice* 2001;9:59-64.
3. Milliken B, Rea Y. A clinical pharmacist's contribution to discharge planning and patient counselling. *The Pharmaceutical Journal* 1997;258:777-778.

4. Cousins DH, Luscombe DK. 2 A new model for hospital pharmacy practice. *The Pharmaceutical Journal* 1996;256:347-351.

## **A national survey of pharmacist transcribing of discharge prescriptions.**

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# **A national survey of pharmacist transcribing of discharge prescriptions.**

By R.J. Hobson\*† and G.J. Sewell\*‡

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## **ABSTRACT**

**Objectives:** To provide quantitative data upon pharmacist discharge prescription transcription service (PDPTS) provided in UK hospitals.

**Method:** Postal questionnaire survey of clinical pharmacy managers.

**Setting:** Selection criteria included one hospital in each acute trust in the U.K.

**Key Findings:** The response rate was 66% (135/206). PDPTS is offered by 49/135 (36%) of hospital pharmacy departments. PDPTS was the most common prescribing activity undertaken by pharmacists, followed by a prescription amendment policy (29%), prescribing in pre-admission clinics (18%) and re-writing drug charts (15%). Fifty-nine department's (44%) did not undertake any prescribing activity.

Of the non-transcribing hospitals, n=59/86 (69%) undertake no prescribing activity (Range= 0 to 3 prescribing activities). Transcribing hospitals offer a wider range of prescribing activities (Range= 1 to 8 prescribing activities).

A weak relationship was found between the total number of pharmacists employed per hospital and the total number of prescribing activities undertaken (correlation coefficient= 0.208, p= 0.018).

The most frequently used PDPTS model involved pharmacists transcribing the discharge prescriptions for their own wards (n=38, 78%). The number of pharmacists transcribing discharge prescriptions per hospital ranges from 1 to 89. (Mean=8, Mode=2, Median= 5, 25% percentile= 2, 75% percentile=10).

The majority of pharmacists write less than 5 prescriptions per day (n=25, 52%), (n=17, 35%) are writing 5-10 prescriptions per day.

The most common training requirement for pharmacists to start transcribing was an in-house training programme (n=27, 55%). The majority of department's do not re-assess the ability of their pharmacists to transcribe (n=37, 80%).

**Conclusion:** Pharmacy departments have started to take on prescribing roles, especially transcribing discharge prescriptions. However, it would appear that the majority of the PDPTS schemes are not being run extensively throughout the hospitals. It is of concern that the principles of clinical governance are not being met in terms of training and re-assessment of the



pharmacists that are undertaking this service. In order to extend this service throughout hospitals, funding, resources and skill-mix maximisation need to be sought. This will enable patients to gain the maximum benefit from this service development.

## **INTRODUCTION**

The recent Audit Commission report "A spoonful of sugar"<sup>1</sup> has identified the pharmacist as a central figure in medicines management. The report states that pharmacists should concentrate on their clinical, patient-centred roles, to help minimize medication errors and manage risk. It also considers that pharmacists should reduce their traditional role of retrospective prescription monitoring.

This report echoes recommendations in the Review of Prescribing, Supply & Administration of Medicines (Final Report) report from 1999<sup>2</sup>, which advocated extending prescribing rights to pharmacists.

Development of pharmacist prescribing in the UK can benefit from the experience gained previously in the United States. Pharmacist prescribing was first introduced in California in the late 1970's. Since then, pharmacist prescribing has extended to include at least 16 states. Only one state (Florida) has introduced independent prescribing, where pharmacists are prescribing from a limited list of drugs.<sup>3</sup> Collaborative drug therapy management has become the suggested model of pharmacist prescribing, whereby the pharmacist has a collaborative arrangement with a physician to dependently prescribe certain medications as agreed in a management plan.<sup>4-6</sup>

A very similar model to this is now being proposed in England, Wales & Scotland, termed supplementary prescribing. The recently published MCA consultation document proposes that pharmacist supplementary prescribing will start in 2003.<sup>7</sup> The report by the Strategy for Pharmaceutical Care in Scotland "The Right Medicine" also states that pharmacists should be able to prescribe by the end of 2003.<sup>8</sup> It is now expected that pharmacists will start training in England & Wales for supplementary prescribing by spring 2003.<sup>9</sup>

Since the late 1990's many hospital pharmacy departments have strived to re-engineer their employee's roles in order to provide a better service to patients. Suggested service developments have included pharmacists transcribing discharge prescriptions,<sup>10,11 12</sup> which is similar in principal to supplementary prescribing.<sup>13-14</sup>

There have been many reports providing evidence of the advantages of such schemes, which include increasing doctor & nurse time for other activities, increasing the number of pharmacist interventions, increased prospective interventions, decreasing the prescription turnover time, cost savings as

patient's own drugs (POD's) are used more often, decreasing out of hours work for the pharmacy department, and decreased error rate.<sup>1, 13-20</sup>

One of the key elements of the government's White Paper, "Information for Health"<sup>21</sup> is the implementation of Level 3 electronic patient record within 100% of acute hospitals by 2005.

When Level 3 electronic prescribing is implemented, there will still be a role for the pharmacist to decide upon the appropriateness of treatment on discharge and input the discharge prescription onto the computer. Pharmacists are already using electronic prescribing systems in this manner, and have become more integrated into the healthcare team.<sup>22, 23, 24</sup>

A pharmacist transcribing discharge prescription's on clinical team's ward rounds has been found to reduce the error rate on the prescriptions when compared to those written by doctors, double the intervention rate by the pharmacist, and increase the number of prospective interventions that the pharmacist makes.<sup>19</sup> All of these findings fall into line with the recommendations of the Audit Commission report.<sup>1</sup>

Realisation of the benefits and the developments that can arise from such service provision could also help pharmacists gain acceptance within the clinical team as a provider of pharmaceutical knowledge, and lead to further development of the pharmacist's role.

The disadvantages of such a service relate to resource issues. For the service to be implemented throughout a hospital, it would be necessary to maximize the technician role in order to release pharmacist time from the dispensary and other duties.

Several reports have identified other pharmacist prescribing roles, such as in pre-admission clinics to obtain patient medication histories and write the in-patient drug charts as well as the discharge prescription according to set protocols<sup>25, 26, 27</sup> and also out-patient clinic prescribing.<sup>28</sup>

A recent survey conducted by Sexton<sup>29</sup> (1999) identified the services that hospital pharmacies were providing to facilitate seamless care upon patient discharge. The study established that out of 162 hospital trusts, a third involved pharmacists in writing discharge prescriptions, but their overall impact on the total number of prescriptions being written was negligible. The survey did not attempt to suggest reasons for this, but did report that managers responding to their survey stated that there were continuing resource and staffing difficulties. The survey did not aim to describe the pharmacist prescribing services.

Literature review undertaken before the survey was developed did not identify any surveys that intended to provide quantitative data upon PDPTS provided in the UK.

The objectives of this survey were to identify the frequency of PDPTS provided in the UK and to provide further detail upon the level & type of

service provided and training requirements for pharmacists involved in such services.

## METHODS

Pharmacists from two hospitals with an existing PDPTS were visited to inform the development of a written, self-completion questionnaire containing a mixture of open & closed questions. Construction of the questionnaire was also aided by the literature review undertaken before the survey was developed. The review elicited the pharmacist “prescribing activities” that department’s were questioned about in the survey. These included PDPTS, transcribing in-patient drug charts, various prescribing activities in pre-admission clinics (which often includes transcribing discharge prescriptions<sup>26 27</sup>) and prescription amendment policies.

For the purposes of this study, and in the absence of a recognised definition of transcribing, transcription is defined as “a process where a pharmacist copies a list of drugs that has been prescribed by a doctor from one chart to another chart or prescription”. In undertaking the act of transcription, there is an implied professional obligation on the pharmacist to review the prescribed medicines & act upon any errors & assure suitability for the patient.

The questionnaire was divided into five sections. Section A enquired about general demographic data, Section B enquired about different prescribing roles undertaken. The rest of the questionnaire sought to establish the details of PDPTS provision. Section C enquired about the extent of the service provision amongst those hospitals that offer a transcription service (i.e. directorates/wards covered and operating hours of the service), and the model of service used. Section D was about training issues (e.g. reassessment, types of training used) and Section E aimed to quantify the service provided (e.g. number of prescriptions written/day/pharmacist, advance notice required). Confidentiality was maintained by number-coding the questionnaires.

Face-to-face interviews with pharmacists (from hospitals with and without a PDPTS) were used to validate the questionnaire. These hospitals were chosen from the same region as the researcher was based for ease of travel. The questionnaire was then piloted in 20 randomly chosen hospitals from Wales, Scotland, England & Northern Ireland in July 2001. Minor adjustments to the instructions for completing the questionnaire were made. Advice on data analysis was sought from a statistician. The questionnaire was distributed at the end of August 2001 to each NHS trust providing acute hospital services in the UK. Single hospitals from each trust were identified using a combination of the UK Drug Information Pharmacists’ Group Directory and the Chemist & Druggist Directory.<sup>30</sup> The questionnaire was sent to one hospital from each trust. Any hospitals that were found to have merged with another trust were removed from the database.

The questionnaire was accompanied by a letter, which included recognised descriptions of independent & dependent (now supplementary) prescribing,<sup>2</sup> and the researcher's description of transcribing, in order to clarify recipient's understanding of the different types of prescribing.

The covering letter was addressed to either the Chief Pharmacist, Principal pharmacist or Clinical Services Manager. The recipient was instructed to pass the questionnaire onto the most relevant person to complete it (if it wasn't themselves). A freepost-addressed envelope was included for return of the questionnaire.

No deadline for completion of the questionnaire was stated on the questionnaire or covering letter, but non-respondents were followed up by a telephone call after 3 weeks and then again at 6 weeks. Further copies of the questionnaire were sent out to those who requested them. The final deadline for accepting returned questionnaires was 11 weeks after they had been originally posted.

Data obtained from returned questionnaires was coded and analysed with the Statistical Package for the Social Sciences (SPSS) version 10, and the significance of the association between variables was assessed using chi-squared, Kruskal-Wallis and bivariate correlations (spearman's rho), where appropriate. Data collected from the pilot questionnaires was not included in the final analysis.

## RESULTS

### *General demographics*

A total of 234 hospital pharmacy departments were identified, of which 20 were used for piloting the questionnaire, leaving 214 hospitals for the main study. Eight of these hospitals were removed after it was established that they had merged with another Trust, leaving 206 hospitals eligible for the study. Of these 206 hospitals, responses were received from 135 hospitals, giving a response rate of 66%. Of these, 68% (n=92) of responses came from District General hospitals & 27% (n=37) from teaching hospitals, and 4% from tertiary referral centres (n=5).

The questionnaire was completed by Clinical pharmacist/managers (26% n=35), Chief Pharmacists (26% n=35) Principal Pharmacists (25% n=34), Pharmacy Managers (7% n=10), Deputy Chief Pharmacists (5% n=7), MI manager/pharmacists (4% n=5), Discharge services pharmacist (4% n=5) and one interface pharmacist (1%).

The size of the hospitals varied, with bed sizes ranging from less than 100 to >1500, with the most common range being 401-600 (33% n=44).

## **Prescribing activities**

### *PDPTS*

36% (49/135) of hospitals were currently offering a pharmacist discharge prescription transcription service.

20/135 (15%) of departments reported that they transcribe in-patient drug charts. The majority of department's that re-write in-patient drug charts also transcribe discharge prescriptions (17/20, 85%).

### *Prescription amendment policy*

The second most common pharmacist prescribing activity was a prescription amendment policy (n=39/135 29%) whereby the pharmacists can follow agreed protocols to change timings & frequencies of drugs or change a non-formulary drug to a formulary alternative within the same pharmacological class.

### *Pre-admission clinics*

24/135 (18%) of departments reported that they performed prescribing roles in pre-admission clinics. 20/135 departments stated that they had pharmacists that wrote patient's normal medication onto drug charts. 12/135 departments reported that they prescribed medicines onto a drug chart at pre-admission clinics according to set protocols including (e.g.) analgesia, antibiotics, VTE prophylaxis, and 8/135 departments prescribe discharge medication at pre-admission clinics according to set protocols. 6/135 departments performed 2 of these roles and 5/135 departments performed 3 of these roles.

### *No prescribing activity*

Hospitals with no pharmacist prescribing comprised the largest group of respondents (n=59, 44%).

### *Other prescribing*

The most common "other" form of pharmacist prescribing that was reported was in anticoagulant clinics (10% n=13) (supplementary prescribing), and Total Parenteral Nutrition (TPN) prescribing (3%, n=4). Four hospitals reported that they have pharmacists that independently prescribe. Other pharmacist prescribing included chemotherapy, in cardiac rehabilitation clinics, migraine clinics, any P medicines and medicines that the patient had been taking before admission.

### *Future Plans*

Of the departments not offering a pharmacist discharge prescription transcription service (PDPTS), 42% (n=36/86) indicated that there had been discussions about pharmacist transcribing, but no decision made as yet. 34%, (n=29/86) indicated that there were no plans for such a development, and 22% (n=19/86) said that they were currently developing such a service. (2= missing data)

Eleven of the departments who said they were implementing a transcription service intended to implement the service in 2002, and 2 departments intended to implement the service in 2003 (5= missing data). One department intended to implement the service during December 2001.

Teaching hospitals employed more pharmacists ( $\chi^2= 21.5$ ,  $df=2$ ,  $p = 0.000$ ) than District General Hospitals. No tertiary referral centres transcribe.

Of the non-transcribing hospitals, n=59/86 (69%) undertake no prescribing activity (Range= 0 to 3 prescribing activities). Transcribing hospitals offer a wider range of prescribing activities (Range= 1 to 8 prescribing activities).

A weak relationship was found between the total number of pharmacists employed per hospital and the total number of prescribing activities undertaken (correlation coefficient= 0.208,  $p= 0.018$ ).

### *Prescribing systems*

On questioning upon when the pharmacy departments started their transcription service, one hospital stated that they have been running such a service since the 1980's; all of the other hospitals that had a PDPTS had started the service between 1995 and 2001.

The majority (68% n=32/47) only operate the service during normal working hours Monday to Friday. A few other hospitals have extended to other parts of the weekend, or later in the evenings but this was an exception.

The wards/directorates in which the PDPTS was offered is illustrated in figure 1. The most common directorate to have a PDPTS was the medical directorate with 51% (n=24/47) of hospitals running the service within this directorate. The next most common directorate was the surgical directorate 36% (n=17/47), followed by parts of these directorates, and care of the elderly. Only 11% (n=5/47) of hospitals had rolled out the service to ALL wards, plus one hospital provided the service to all wards minus those wards that stocked pre-packed drugs. One hospital operated PDPTS only in those wards where an electronic prescribing system (EPS) was in place.

The pharmacy department mainly fund the PDPTS (58% n=28/48). Some hospitals have managed to obtain funding from the medical &/or surgical directorates (23% n=11/48) and some have received trust monies into the pharmacy budget (8% n= 4/48).

The number of pharmacists providing PDPTS per hospital ranges from 1 to 89. (Mean=8, Median= 5, Mode=2, 25% percentile= 2, 75% percentile=10). The total number of pharmacists (whole time equivalent) per department that provides PDPTS ranges from 7 to 102 (Mean=19, Median=16, Mode=9). The percentage of pharmacists involved in PDPTS per department ranges from 3% to 100% (Mean=39%, Median=33%, Mode=33%).

The model that the PDPTS is based upon is illustrated in Table 1. The first 4 models of service listed in Table 1 were established from visits to two other hospitals that were running a pharmacist transcription service, and the other categories was from the results of the “other” option, which was examined for common themes. The total is greater than 49 as some respondents ticked more than one option for this question. The most common model used was the ward pharmacist model (78%, n=38/49) in which pharmacists transcribe the discharge prescriptions for their own ward.

The majority of departments (79% n=37/47) reported using paper-based prescriptions for PDPTS. Nine departments have pharmacists producing prescriptions on electronic prescribing systems (Computer-generated prescriptions (n=6), paper & computer (n=3)).

Table 2 illustrates how many discharge prescriptions a pharmacist transcribes per day. The majority of pharmacists are writing less than 5 prescriptions per day (52% n=25), 35% (n=17) are writing 5-10 prescriptions per day. The advance notice required to produce a pharmacist-written discharge prescription is shown in table 3.

### *Training*

Training requirements for pharmacists who transcribe discharge prescriptions were explored. Table 4 illustrates that the most common training requirement was the completion of an in-house training programme (55% n=27), followed by designation by a senior pharmacist (31% n=15), and then possession of a clinical diploma (20% n=10). The total is greater than 49 as some respondents ticked more than one option for this question.

Of the eight departments that had a formal training programme for PDPTS (1=missing data), five departments used tutorials, seven departments used observation, seven departments used supervision, and four departments used an examination (some hospital pharmacy departments used a combination of techniques).

Of the 11 departments that did assess competency to transcribe, four did this via non-ward based training/assessment, four departments did ward-based assessment and 1 completed an annual competency review (2= missing data). Frequency of re-assessment of competency of the pharmacists who were transcribing is illustrated in Table 5. The 9 departments that did undertake some form of re-assessment were asked how they did this. Three departments used observation, two departments used a total competency assessment

programme, and one department used supervised transcription of discharge prescriptions, one department used an examination, one department used ongoing assessment via an intervention programme, and one department completed an audit of completed prescriptions prepared by the pharmacist.



## Discussion

### *Critique of method*

There are several areas where it has become apparent that further questioning would have been useful;

- ❖ The percentage of the overall prescriptions written in the hospital that were written by pharmacists.
- ❖ Is any other type of pharmacist assessment undertaken, as some hospitals commented that although they did not complete an assessment specifically for pharmacist's transcription abilities, they did complete a whole competence assessment regularly.
- ❖ Is the PDPTS regularly audited?
- ❖ Opinions upon the impact of electronic prescribing on PDPTS
- ❖ Reasons for lack of further extension of PDPTS.

Difficulties obtaining an up to date list of clinical pharmacists resulted in some questionnaires being directed to Chief pharmacists and Principal pharmacists. This may have affected the response rate and also the information in the response, and so may have added some bias to the results. A manager such as a chief pharmacist or a principal pharmacist would be indirectly involved with the service as opposed to a clinical pharmacist who would be **directly** involved with the day to day running of a transcription service. Another problem was identifying hospitals that had merged trusts. Some of these were not identified until questionnaires were returned, these hospitals were then removed from the results.

It would have been preferable to use a sampling method whereby the questionnaire was sent to every hospital in every trust as opposed to just one of them. This is because some hospitals have only recently merged trusts and therefore they may have different pharmacist prescribing roles & transcription services in place from the other hospital(s) in the trust. However, time constraints meant that the number of questionnaires would have been too great to deal with.

The response rate is slightly less than similar questionnaire surveys <sup>29,31</sup>, but this may be due to the fact that the questionnaire was sent out in the summer. It is doubtful whether sending the questionnaire out at this time of year would have introduced any element of bias as the data collection period was for 11 weeks and so staffing bias was not anticipated.

### *Prescribing activities*

The majority of departments have undertaken some form of pharmacist prescribing, with the most common type of pharmacist prescribing being that of transcribing discharge prescriptions. Those hospitals that offered a PDPTS also offered a wider range of other pharmacist prescribing activities than those hospitals not offering such a service. Also, teaching hospitals, which employ more pharmacists than DGH's were able to offer PDPTS more

frequently. It could be suggested that staffing is a limiting issue in the provision of pharmacist prescribing activities.

### ***Prescribing systems***

The ward model of pharmacist transcribing was the most popular model in practice (n=38, 78%). Ideally, the ward pharmacist should be writing discharge prescriptions whilst on the ward round, when medicine management issues can be discussed with the whole team as a collaborative process.<sup>4 6</sup> The pharmacist could write the discharge prescriptions as the ward round is continuing, meaning that as soon as the discharge decision is made, the prescription can be written, and passed onto ward technicians to process.

The majority of pharmacists that are transcribing discharge prescriptions are writing less than 5 prescriptions per day (52% n= 25/49). As over half of the hospitals have less than 5 pharmacists who transcribe prescriptions, it can be assumed that the majority of hospitals who run such a service are not having a large impact on the overall number of discharge prescriptions being written in the hospital. This agrees with the findings of Sexton's survey of 1999, which found that pharmacists were involved in writing discharge prescriptions in about a third of hospitals, but their impact was considered to be negligible.<sup>29</sup>

The transcription services were operating during normal working hours Monday to Friday by the majority of department's (n=32/47, 68%). In light of the fact that Slee & Farrar <sup>32</sup> have shown that on weekdays 50% of inpatient and 18% of take home prescriptions were written outside the traditional 9-5pm working day, if a transcription service is going to have a significant impact, it needs to be operated over extended hours. The optimum benefit from this service provision may actually be from 5pm until midnight when junior doctors are working with minimal senior support. It could be hypothesized that this time would be the maximum risk for prescribing errors.

### ***Training***

*Even though all pharmacists who are competent to practice should be able to transcribe discharge prescriptions, for the purposes of Clinical Governance, the service should be accountable.<sup>33</sup> Therefore all pharmacists providing the service should be assessed against key competencies, to provide an equivalent service of a suitable standard.*

The results show that a relatively low number of hospitals have a formalised training programme (n=8). This therefore suggests that when 55% (n=27) said that they ask their pharmacists to undertake an in-house training programme in order to be authorised to transcribe, some of these training programmes may be ad-hoc arrangements.

The service should also be regularly audited to make sure that standards are being maintained. Principles of clinical governance are not being adhered to if these issues are not addressed.

### ***Future research***

A multi-centre trial needs to be undertaken in order to investigate the different models of pharmacist prescribing, & the impact of this service development upon the pharmacy department, to enable hospitals that are not currently offering pharmacist-prescribing services to introduce the optimum service model. Also an economic study to investigate the cost/benefit ratio of providing such a service should be undertaken.

In conclusion, 36% (49/135) of pharmacy departments have developed a pharmacist discharge prescription service. However, the transcription service offered tends to be rather ad-hoc and only available in certain wards or single directorates. This may well be due to resource issues. Training & competency assessment of this pharmacist role also appears to not meet the requirements of clinical governance. Literature supports the valuable patient benefits of such a service in terms of reduced waiting time for medicines on discharge<sup>16,20,14,18</sup> and also reduced error rates<sup>1,9,19,14</sup>. The service also falls into line with the requirements of the Audit Commission report.<sup>1</sup>

In order to extend this service throughout hospitals, funding, resources and skill-mix maximisation need to be sought. This will enable patients to gain the maximum benefit from this service development.

### **Acknowledgements:**

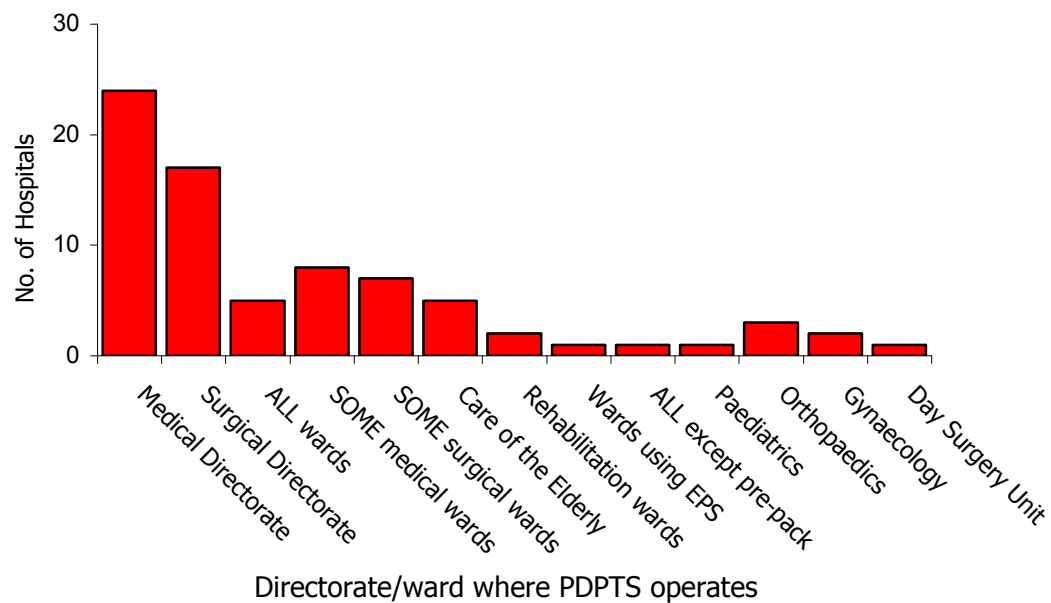
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## **References:**

1. A spoonful of sugar -Medicines management in NHS hospitals: Audit Commission, 2001.
2. Review of prescribing, supply and administration of medicines, final report: Department of Health, 1999.
3. Farrell J, North-Lewis P, Cross M. Pharmacist prescribing in the United States. *The Pharmaceutical Journal* 1997;259:187-190.
4. Carmichael JM, O'Connell MB, Devine B, Kelly W, Ereshefsky L, Linn WD, et al. Collaborative drug therapy management by pharmacists. *Pharmacotherapy* 1997;17(5):1050-1061.
5. Webb CE. Prescribing medications: Changing the paradigm for a changing health care system. *American Journal of Health Systems Pharmacy* 1995;52:1693-1695.
6. Galt KA. The key to pharmacist prescribing: Collaboration. *American Journal of Health Systems Pharmacy* 1995;52:1696-1699.
7. Proposals for supplementary prescribing by nurses and pharmacists and proposed amendments to the prescription only medicines (human use) order 1997. London: MCA, 2002:1-19.
8. The Right Medicine: A strategy for pharmaceutical care in Scotland.: Scottish Executive, 2002:1-38.
9. Root G. Supplementary prescribing-a groundbreaking opportunity. *The Pharmaceutical Journal* 2003;270:19-20.
10. Taheny K, Tyrell A, Cairns C, Bunn R. Influence of patient focused care on managing medicines for discharge. *The Pharmaceutical Journal* 1999;262:368-371.
11. Leech D. Patient directed pharmacy services- do they benefit their patients? *Hospital Pharmacist* 2000;7:263-264.
12. Leech D. New roles for pharmacy technicians at the William Harvey Hospital. *Hospital Pharmacist* 2000;7:30-32.
13. Ketley D, Qualie MJ, Godfrey BD. The near patient clinical pharmacist 1. From design to pilot. *The Pharmaceutical Journal* 1998;261:247-249.
14. Jacklin A, Patel K, Almossawi O. A discharge pharmacist service improves the timeliness, quality and cost of discharge. *Pharmacy in Practice* 2001;11(April 2001):100-102.
15. Qualie MJ, Godfrey BD, Ketley D. The near patient clinical pharmacist 2. From pilot to service. *The Pharmaceutical Journal* 1998;261:287-289.
16. Culshaw M, Dawes S. Assessing the value of a discharge pharmacist. *Pharmacy Management* 1998;14(2):22-23.
17. Feil RA, Jones WN. The impact of pharmacist-initiated discharge prescription writing on adverse drug reactions and medical centre drug costs. *Pharmacotherapy* 1999;19(4):509.
18. Milliken B, Rea Y. A clinical pharmacist's contribution to discharge planning and patient counselling. *The Pharmaceutical Journal* 1997;258:777-778.

19. Boorman S, Cairns C. Another way forward for pharmaceutical care: a team-based clinical pharmacy service. *The Pharmaceutical Journal* 2000;264:343-346.
20. Cattell R, Conroy C, Sheikh A. Pharmacist intergration into the discharge process: a qualitative and quantitative impact assessment. *The International Journal of Pharmacy Practice* 2001;9:59-64.
21. NHS Executive information policy unit. Information for health: an information strategy for the modern NHS 1998-2005, a national strategy for local implementation. London: DOH; 1998.: Department of Health, 1998.
22. Williams C. Electronic prescribing can increase efficiency of the discharge process. *Hospital Pharmacist* 2000;7(8):206.
23. Farrar K. Can electronic prescribing increase the efficiency of the discharge process? *Hospital Pharmacist* 2000;7(5):114.
24. Norris C, Thomas V, Calvert P. An audit to evaluate the acceptability of a pharmacist electronically prescribing discharge medication and providing information to GPs. *The Pharmaceutical Journal* 2001;267:857-859.
25. Lord S. The interface- Steps towards seamless care. *Hospital Pharmacist* 1999;6:83-84.
26. Hebron B, Jay C. Pharmaceutical care for patients undergoing elective ENT surgery. *The Pharmaceutical Journal* 1998;260:65-66.
27. Hick H, Deady PE, Wright D, Silcock J. The impact of the pharmacist on an elective general surgery pre-admission clinic. *Pharmacy World and Science* 2001;23(2):65-69.
28. Booth CD. Pharmacist-managed anticoagulant clinics: A review. *The Pharmaceutical Journal* 1998;261:623-625.
29. Sexton J, Ho YJ, Green CF, Caldwell NA. Ensuring seamless care at hospital discharge: a national survey. *Journal of Clinical Pharmacy and Therapeutics* 2000;25:385-393.
30. Grice P. *Chemist & Druggist Directory*: London: Miller Freeman, 1998.
31. Wilkie P, Sibbald B, Raftery J, Anderson S. Prescribing at the hospital-general practice interface I: Hospital outpatient dispensing policies in England. *British Medical Journal* 1992;304:29-31.
32. Slee A, Farrar K. What are the normal working hours for a hospital pharmacy? *The Pharmaceutical Journal* 1998;260:923-5.
33. Achieving excellence in pharmacy through clinical governance. London: Royal Pharmaceutical Society of Great Britain, 1999:1-16.

## Tables & Figures:



**Figure 1:** Directorates/wards where PDPTS operates. (n=49)

Model	Frequency (%)
Pharmacists attend whichever ward bleeps them	3 (6)
Ward Pharmacist model	38 (78)
Medical pharmacist attends whichever ward within the medical directorate bleeps them.	8 (16)
Surgical pharmacist attends whichever ward within the surgical directorate bleeps them.	4 (8)
Ward model plus urgent bleeps	1 (2)
Ward model plus only at specific times/WR	2 (4)
Ward model plus odd prescriptions written in pharmacy	1 (2)

**Table 1:** Model of PDPTS in use.(n=49)

No. of prescriptions/day	Frequency (%)
<5	25 (52)
5-10	17 (35)
11-15	3 (6)
16-20	2 (4)
26-30	1 (2)
<b>Total</b>	<b>48 (100)</b>

**Table 2:** Number of pharmacist-written prescriptions / pharmacist / day.(n=49)

<b>Advance notice required</b>	<b>Frequency (%)</b>
Less than 1 hour	16 (33)
1-2 hours	6 (13)
3-4 hours	1 (2)
24 hours	6 (13)
No rule as such	13 (27)
Only written whilst pharmacist is on the ward	6 (13)
<b>Total</b>	<b>48 (100)</b>

**Table 3:** Advance notice required to produce a prescription (n=49)

<b>Training</b>	<b>Frequency (%)</b>
Clinical certificate	8 (16)
Clinical Diploma	10 (20)
MSc in clinical pharmacy	1 (2)
Designation by senior pharmacist	15 (31)
2 years ward experience	7 (14)
3 years ward experience	1 (2)
In-house training programme	27 (55)
No further training	7 (14)
At least 1 year of diploma completed	1 (2)
Clinical diploma or 3 years experience	1 (2)
Training programme in development	1 (2)

**Table 4:** Training required for pharmacists to transcribe. (n=49)

<b>Frequency of reassessment</b>	<b>Frequency (%)</b>
Twice a year	2 (4)
Once a year	1 (2)
Once every 2 years	3 (7)
Never reassess	15 (33)
Not reached a decision	22 (48)
On-going assessments	3 (7)
<b>Total</b>	<b>46 (100)</b>

**Table 5:** Frequency of reassessment of pharmacists providing a PDPTS. (n=49)

# **Responsibility, accountability and factors influencing provision of pharmacist transcription of discharge prescriptions.**

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# Reponsibility, accountability and factors influencing provision of pharmacist transcription of discharge prescriptions.

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## **ABSTRACT**

**Objectives:** To investigate the legal issues concerning authorisation of pharmacist transcribed discharge prescriptions and the prevalence of formal protocols for such a service. Secondly, to identify the factors influencing the decision upon whether to provide a pharmacist discharge prescription transcription service (PDPTS).

**Method:** Postal questionnaire survey of pharmacy clinical managers.

**Setting:** Selection criteria included one hospital in each acute trust in the U.K.

**Key Findings:** The questionnaire completion rate was 66% (135/206). Thirty-six per-cent (49/135) of pharmacy departments reported that they offered PDPTS.

The majority of pharmacy departments required a medical practitioner to counter-sign the pharmacist written prescription (65%, n=31, 1=missing data) and had a formal protocol for their PDPTS (57%, n=27, 2=missing data). However, seven hospitals reported that they *sometimes* asked the doctor to counter-sign/authorise the discharge prescription, & ten hospitals that they did not ask the doctor to counter-sign/authorise the prescription.

The most common reasons *for* implementing PDPTS was to reduce delays in the discharge process (73% n=35), and decreased errors (50% n=24).

Amongst pharmacy departments not providing PDPTS, the main reasons given for not developing PDPTS were insufficient resources (60% n=18), and preferentially developing other services (23% n=7).

## **Conclusion:**

There is currently no consensus upon authorisation requirements of pharmacist-written discharge prescriptions and the legal position is unclear.

The hospital pharmacy departments that “sometimes” request a medical practitioner’s counter-signature raise clinical governance and medico-legal issues, especially if their practice deviates from trust policy.

The reasons given *for* implementation of PDPTS concur with previous studies. [1], [2], [3]

The most common reason to not implement PDPTS was staffing resource. This would seem to be supported by the fact that the greater the number of pharmacists that are employed, the greater the number of pharmacist prescribing activities can be offered.[4]

## **INTRODUCTION**

We have previously established that in 2001, 36% of hospital pharmacy departments in the UK were offering pharmacist discharge prescription transcription services (PDPTS)[4]. There are signs that the number of hospitals offering such a service is increasing[5].

Review of the published literature seems to suggest that the advent of pharmacists writing discharge prescriptions seems to be a role that is peculiar to the UK. Although pharmacists in certain US States have extensive prescribing rights in terms of initiating, modifying and discontinuing medication, especially in outpatient clinics, [6-8] only one US abstract could be identified which concluded that pharmacists should write discharge prescriptions on the basis of less adverse drug events and more cost-effectiveness when compared to those written by physicians and nurse practitioners. [9] No such literature could be found from European sources. This could well be due to discharge prescription provision not being such a source of delayed discharge or error in these countries. Also primary care may be more involved in the discharge process.

It was apparent from the first cohort of pharmacists taking the supplementary prescribing courses in London that the most common supplementary prescribing role for pharmacist prescribers in secondary care is outpatient medication review clinics in specialist clinical areas.[10] Personal communication with the London supplementary prescribing project group (BPC Harrogate 16<sup>th</sup> September 2003) suggests that although no pharmacists in the first cohort are planning to write discharge prescriptions, the issue of whether PDPTS could fit into the supplementary prescribing model is still under discussion. However, it is doubtful whether this process could fit the supplementary prescribing model.

There is currently no legal framework for non-medical professionals to write discharge prescriptions. In the absence of a recognised definition of transcribing, it is also unclear whether the process of writing the discharge prescription is prescribing or transcribing.

The current guidance in the Medicines, Ethics & Practice guide suggests that the process is transcription, and states that "Providing the entry (upon the patient's bed card) fulfils the requirements, the details can be transposed onto

an order form, to be used in pharmacy to prepare the take home medication. It is good practice for the transposition to be carried out by a pharmacist. By carrying out this transposition the pharmacist is NOT prescribing, as the original direction to supply was made by a practitioner.” [11]

However, in undertaking the act of transcription, there is an implied professional obligation upon the pharmacist to review the prescribed medicines and to respond appropriately to any errors or inappropriate prescribing. If this process did not occur then you would not need a pharmacist to copy one list of medicines to another- a medical secretary could do this. Therefore does this professional review of the prescription change the process from merely transcribing to prescribing?

One of the key issues seems to be the question of who is legally responsible for the prescriptions that are written by pharmacists in this situation. – Anecdotal evidence suggests that some hospitals operating PDPTS are asking the doctor to co-sign the prescriptions that are written by pharmacists, whilst other hospitals are not.

The Department of Health’s recent discharge document[12] suggests that the medical practitioner is still responsible for signing the prescription where medication changes have been made. This would suggest that *only* if the pharmacist reviews the drug chart & wants to change any of the medications, the discharge prescription would need signing by the doctor. If the pharmacist makes no changes to the medication, it would not need signing by the medical practitioner. So does this suggest that the doctor would still be legally responsible for the discharge prescription that is written & signed by a pharmacist?

Due to the legal status & responsibility for these prescriptions written by pharmacists being so unclear, these issues could be considered a potential barrier to development of PDPTS. Therefore authorisation requirements for pharmacist-written discharge prescriptions were also investigated, together with the prevalence of formal protocols for PDPTS within hospital pharmacy departments offering such a service.

There have been many reports advocating the benefits of providing PDPTS.[1-3, 9, 13-17] It has been suggested that services such as PDPTS can speed up the discharge process,[2, 3, 15, 16, 18], reduce errors on discharge prescriptions[1, 15-18] and also help to release junior doctor time[1, 13, 15]. However, there is no consensus view available upon the benefits of the process. It is also unknown how much influence these factors have upon the decision to provide a PDPTS service. It is important to establish these driving factors, as they will be applicable for other pharmacist prescribing roles and the impact of these factors upon service development could be considerable.

## **METHODS**

### **Questionnaire development**

Pharmacists from two hospitals with an existing PDPTS were visited to inform the development of a written, self-completion questionnaire containing a mixture of open & closed questions. Construction of the questionnaire was also aided by a literature review undertaken before the survey was developed.

The questionnaire included the following sections: Section A inquired about general demographic data, Section B inquired about different prescribing roles undertaken, and amongst those departments not offering PDPTS, their reasons for not providing this service. The rest of the questionnaire sought to establish the details of PDPTS provision. Section C inquired about the extent of the service provision amongst those hospitals that do offer a transcription service (i.e. directorates/wards covered and times service is available), the model of service used, and their reason(s) for providing PDPTS. Confidentiality was maintained by number-coding the questionnaires.

### **Validation and piloting**

Face-to-face interviews with pharmacists (from hospitals with and without a pharmacist transcription service) were used to validate the questionnaire. These hospitals were chosen from the same region as the research team for ease of travel. The questionnaire was then piloted in 20 randomly chosen hospitals from Wales, Scotland, England & Northern Ireland during July 2001. Minor adjustments to the instructions for completing the questionnaire were made as a result of this pilot study. Advice on data analysis was sought from a medical statistician.

### **Main survey**

The questionnaire was distributed at the end of August 2001 to each NHS trust providing acute hospital services in the UK. Single hospitals from each trust were identified using a combination of the UK Drug Information Pharmacists' Group Directory[19] and the Chemist and Druggist Directory.[20] The questionnaire was sent to one hospital from each trust. Some questionnaire responses established that hospitals had recently merged with another trust. If this was the case, the response from that hospital was removed from the database.

The questionnaire was accompanied by a letter, which included recognised descriptions of independent & dependent (now supplementary) prescribing [21], and the researcher's definition of transcribing, in order to clarify recipient's understanding of the different types of prescribing.

The covering letter was addressed to the Chief Pharmacist, principle pharmacist or clinical services manager, according to which name could be found in the Chemist & Druggist Directory[20]. The recipient was requested to pass the questionnaire onto the most relevant person to complete (if it was

not themselves). A freepost-addressed envelope was included for return of the questionnaire.

No deadline was placed on completion of the questionnaire, but non-respondents were followed up by a telephone call after 3 weeks and then again at six weeks. Further copies of the questionnaire were sent out to those who requested them. The final deadline for accepting returned questionnaires was 11 weeks after they had been originally posted.

Data obtained from returned questionnaires were coded and analysed using the Statistical Package for the Social Sciences (SPSS) version 10, and the significance of the association between variables was assessed using chi-squared and Kruskal-Wallis, and bivariate correlations (Spearman's rho) where appropriate.

## **Results**

### ***General demographics***

A total of 234 hospital pharmacy departments were identified, of which 20 were used for piloting the questionnaire, leaving 214 hospitals for the main study. Eight of these hospitals were removed after it was established that they had merged with another Trust, leaving 206 hospitals eligible for the study. Of these 206 hospitals, responses were received from 66 per cent response rate (n=135). Sixty-eight per cent of responses (n=92) from district general hospitals, 27 per cent (n=37) from teaching hospitals, and 4 per cent (n=5) from tertiary referral centres.

The questionnaire was completed by clinical pharmacist/managers (26 per cent, n=35), chief pharmacists (26 per cent, n=35) principal pharmacists (25 per cent, n=34), pharmacy managers (7 per cent, n=10), deputy chief pharmacists (5 per cent, n=7), medicines information manager/pharmacists (4 per cent, n=5), discharge services pharmacist (4 per cent, n=5) and one interface pharmacist (1 per cent, n=1).

The size of the hospitals varied, with bed numbers ranging from <100 to >1,500, with the most common being 401-600 (33 per cent, n=44).

Thirty-six per-cent (49/135) of pharmacy departments reported that they offered PDPTS.

### ***Responsibility and accountability***

Although the majority of hospitals operating PDPTS had a formal protocol for the service in place, (57 per cent, n=27), a substantial number did not have a protocol in place (43 per cent, n=20) however, 6 of these hospitals were in the process of drawing one up. (2= missing data)

The majority of hospitals that offer PDPTS ask the doctor to counter-sign/authorise the prescription written by the pharmacist before the patient is discharged (65 per cent n=31/48) (1=missing data). However, seven hospitals reported that they *sometimes* asked the doctor to counter-sign/authorise the discharge prescription, & ten hospitals that they did not ask the doctor to counter-sign/authorise the prescription.

Those pharmacy departments that did not ask the doctor to co-sign the prescription often asked the doctor to indicate in some other manner that they wanted the pharmacist to write the prescription and were satisfied that the current medication was suitable for the patient at discharge. Three departments used verbal authorisation, two departments asked the doctor to sign the in-patient drug chart, two departments "sometimes" asked the doctor to sign the in-patient drug chart and one asked the doctor to sign a separate form. Two departments did not ask the doctor to indicate in any other manner of his/her authorisation to write the prescription.

Among the hospitals that "sometimes" asked the doctor to counter-sign the pharmacist-written prescription, only one hospital had an alternative method

of authorisation, which was to sometimes ask the doctor to counter-sign the in-patient drug chart.

All of the hospitals were asked if the doctor indicated in any other manner that he/she gave authorisation for certain drugs to be prescribed on discharge by the pharmacist (Table 1). The most common method used for indicating which drugs the patient was to be discharged upon was verbal authorisation (15 per cent, n=7), (1=missing data) followed by the doctor sometimes signing the drug chart (13 per cent, n=6). The twenty-six reported methods of authorisation other than countersigning were used by twenty-one pharmacy departments indicating that some departments used several different authorisation methods. The remaining twenty-seven pharmacy departments did not use any other methods of authorisation.

### *Factors that influence the provision of a PDPTS*

Pharmacists in hospitals that do offer PDPTS (n=49/135) were asked their reasons for offering the service, via an open question. (1=missing data) The results are presented in Table 2. Most hospitals gave more than one reason for providing PDPTS. The most common reason for implementing PDPTS was to speed up the discharge process (73 per cent, n=35), followed by to improve accuracy/decrease errors/improve quality (50 per cent, n=24). Thirty-three per cent (n=16) stated that the service was implemented to release junior doctor time.

Of the departments not offering a pharmacist discharge prescription transcription service (PDPTS), 42% (n=36/86) indicated that there had been discussions about pharmacist transcribing, but no decision made as yet. 34%, (n=29/86) indicated that there were no plans for such a development, and 22% (n=19/86) said that they were currently developing such a service. (2=missing data)

The pharmacy departments that had no plans to implement PDPTS were asked, via an open question, for their reasons against introducing this service. The results are shown in Table 3.

The most frequently cited reason for *not* implementing a transcription service was insufficient resources (58 per cent, n=18), followed by development of other medicines management services in preference to pharmacist transcription of discharge prescriptions (e.g. Patient's Own Drugs (PODs) and one-stop dispensing) (23 per cent, n=7, 4=missing data)

At no point were legal issues suggested as a factor against the provision of PDPTS.

At the end of the questionnaire, respondents were asked whether they had any further comments. In this section, amongst the hospitals that did not provide PDPTS, a total of 24 comments were made. 11 of these hospitals commented that they were currently considering the implementation of

PDPTS, although 4 hospitals also commented that this did depend upon staffing/funding resources. 3 hospitals also positively commented that there were clear benefits of PDPTS. Only two comments suggested that there would be opposition of PDPTS implementation by medical staff:

1.) *"Despite continuous problems with delayed discharges due to TTO's not being ready, we are likely to meet resistance to pharmacists transcribing TTO's from our medical director. He is of the opinion that pharmacists should not write on prescription charts at all, but should be educating & instructing the junior doctors on how to do it."*

2.) *"A pilot project run 2-3 years ago of a pharmacist writing discharge prescriptions for medical patients worried medical staff so much that they got their act together (temporarily). There were problems predicting discharge doses e.g. reducing steroid doses. The project was not continued."*

As stated earlier, some hospitals were not introducing PDPTS due to other services or electronic prescribing being implemented preferentially instead (Table 3). Three similar comments were also made in the open comments section about the potential impact of electronic prescribing upon the need for PDPTS:

3.) *"This will be superseded by electronic prescribing"*



## **Discussion**

### ***Responsibility & accountability***

Although PDPTS is widespread, the results of this study indicate that there is a lack of consensus on authorisation requirements for pharmacist-written prescriptions. The Medicines Act 1968 [22] does not define what a prescription is or what a hospital is. It is therefore not surprising that there is no authoritative interpretation of the legality of prescriptions written by non-medically qualified personnel.[23] However, this position does not seem to be a perceived barrier to pharmacists when implementing PDPTS.

A few hospitals commented that although it was in their official policy that the doctor should always sign the prescription (and had indicated this in their questionnaire response), in practice this did not always happen. Some respondents indicated that they *sometimes* obtained a doctor's counter-signature on their pharmacist-written discharge prescriptions. This approach is unlikely to be compliant with their protocols and raises a clinical governance issue. If there are mistakes on the prescriptions produced in this scenario, who is responsible and accountable for the overall quality of the prescription, shortcomings in care or even harm to the patient?

Those hospitals operating PDPTS without having a formal protocol in place (43 per cent, n=20) are also not following the principles of clinical governance as they do not have an accountable, safe system in place and are not providing their employee pharmacists with formalized support.

Another perceived problem in the provision of PDPTS is that prescribing and clinical checking roles are not separated thus creating a risk management issue. Some hospitals have overcome this issue by swapping the prescribing and checking roles with the doctor, so that the pharmacist writes the prescription and the doctor checks and signs it.[1, 2]

However, it could be argued that due to time constraints upon the doctor, the prescription in this situation may be authorised, but the clinical check may not always happen.

There is currently no legal route for non-medical professionals to write discharge prescriptions. A patient group direction (PGD) is a written direction relating to supply and administration, or just administration, of a prescription only medicine (POM) (or Pharmacy-only medicines (P) and general sales list medicines (GSL) to persons generally (subject to specified exclusions) in specific situations and is signed by a doctor or dentist and a pharmacist.[24] The advent of PGD's would not enable pharmacist prescribing of discharge prescriptions as the drugs and clinical situation need to be specified in the PGD.

Similarly, for PDPTS to fit into the proposed model for supplementary prescribing, a clinical management plan would need to be written for every patient with a pharmacist-written discharge prescription. This is clearly

impractical. This obstacle may mean that some hospitals will continue with their own methods of authorisation of discharge prescriptions instead of attempting to conform with the requirements of supplementary prescribing.

It is apparent that there are several unanswered legal issues surrounding PDPTS.

- It is unclear whether the process itself is transcribing or prescribing. – Would a court of law view that a process whereby a list of medications was reviewed by a pharmacist and written on a document that was later accepted for dispensing at a pharmacy was not in fact prescribing but something else entirely?
- Who is legally responsible for the prescriptions that are written in this scenario? Therefore, who should authorise these prescriptions?

Therefore central guidance from the Department of Health and tailored provision of training and assessment from higher education institutions should be provided for this specific role, as per the supplementary prescribing model. Without standardised guidelines for this process, it could be viewed as a disaster waiting to happen.

#### *Factors that influence the provision of a PDPTS*

The most frequent reason cited for providing a PDPTS was to speed up the discharge service (73 per cent, n=35). Published studies provide evidence to support this reasoning.[2, 3, 15, 16, 18]

The system where medical practitioner's write patient's discharge prescriptions at the end of the ward round when the consultant has decided that the patient is medically fit to go home is flawed, and leads to long waiting times for patients.[3]

The Department of Health's current discharge document suggests that in order to improve & speed up the discharge process, the roles of junior doctors and pharmacists in taking medication histories on admission and writing up take home medication needs to be reviewed. [12] It also suggests that the discharge process should be planned for at the earliest opportunity. Therefore by pharmacists writing discharge prescriptions in a more timely manner, the discharge process could be more efficient. If PDPTS was combined with a "one-stop" dispensing service[25] the discharge prescription processing time could be even further reduced, with both the prescription and supply of medications for discharge being managed by pharmacy.

The next most commonly cited reason for providing a PDPTS was to reduce errors on prescriptions/improve accuracy (50 per cent, n=24). This reason is also supported by published literature,[1, 15, 16, 18] and also by the Audit Commission report "A spoonful of sugar,"[17] which has reported that pharmacists are five times more accurate than doctors in writing discharge prescriptions. Prescribing by newly qualified doctors is currently under particular scrutiny as a result of changes in junior doctor training.[26]

It is apparent that extending prescribing rights to pharmacists will help towards meeting the Government targets of reducing serious medication errors by 40% by 2005.[27] The presence of a pharmacist on clinical ward rounds has also been shown to prevent further errors occurring,[17] suggesting that pharmacists are also well placed to make interventions and review medication on the ward round as part of PDPTS.

If these systems were in place the flow of work in the dispensary would also be improved as errors would be rectified before the discharge prescription was written[18].

Thirty-three per cent (n=16) of departments operating a PDPTS stated that one of their reasons for implementing the service was to release junior doctor time. Junior doctor time would not only be saved by not having to write the discharge prescriptions, but also from the reduced amount of time having to answer their bleep to rectify errors and omissions with the pharmacy department. The time saved by doctors from implementing such a service has been estimated as seven hours per doctor over a 3-month period,[1] 2 hours per doctor per week[13] and also 45 minutes per doctor per day.[15] Some pharmacy departments have managed to obtain funding for extra pharmacists to perform this role from resources provided to reduce junior doctors working hours.[28] This may be an option for consideration by those hospitals that had not implemented PDPTS due to funding problems.

One of the main reasons for **not** introducing PDPTS was lack of resources (n=18), and this claim is supported by the fact that the more pharmacists that are employed, the more pharmacist prescribing activities can be implemented.[4] Although insufficient pharmacist resource is a major obstacle to PDPTS implementation, if pharmacy services are examined there are many ways in which departments can become more efficient in the way that they work, for example, by moving towards a pharmacist-free dispensary, and developing ward pharmacy teams of a pharmacist and technicians and assistants.[29-31] This re-examination of the way that pharmacy departments work may release some pharmacist time for new roles including prescribing.

The first and second comments made by questionnaire respondents in the results section illustrate potential difficulties some pharmacy departments may have in extending their role. Views upon the extension of the pharmacist role by medical staff may be due to individual personalities and beliefs of the medical practitioner, who may not fully understand the level of training that pharmacists receive. This situation may improve if chief pharmacists are elevated to the equivalent of a clinical director, and are members of the trust's management executive, as recommended by the Audit Commission report "A Spoonful of Sugar".[17] The chief pharmacist will then be in a stronger position to develop changes in pharmacist's practice. Also the implementation of the government plans for pharmacists to become supplementary prescribers will mean that this type of opinion will inevitably change.[32]

When level 3 electronic prescribing is implemented, there will still be a role for the pharmacist to decide upon the appropriateness of treatment on discharge and input the discharge prescription onto the computer. Pharmacists are already using electronic prescribing systems in this manner, and have become more integrated into the healthcare team. [28-33] Therefore, the advent of electronic prescribing should not be seen as the end of the involvement of pharmacists in the discharge process, which was inferred in the third comment presented in the results section.

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## **References**

1. Boorman, S. and C. Cairns, *Another way forward for pharmaceutical care: a team-based clinical pharmacy service*. *The Pharmaceutical Journal*, 2000. **264**: p. 343-346.
2. Milliken, B. and Y. Rea, *A clinical pharmacist's contribution to discharge planning and patient counselling*. *The Pharmaceutical Journal*, 1997. **258**: p. 777-778.
3. Cattell, R., C. Conroy, and A. Sheikh, *Pharmacist intergration into the discharge process: a qualitative and quantitative impact assessment*. *The International Journal of Pharmacy Practice*, 2001. **9**: p. 59-64.
4. Hobson, R.J. and G.J. Sewell, *A national survey of pharmacist transcribing of discharge prescriptions*. *The International Journal of Pharmacy Practice*, 2003. **11**: p. 89-95.
5. Parker, S., et al., *How many pharmacists are writing discharge prescriptions in the north of England?* *The International Journal of Pharmacy Practice*, 2003. **11**(Supplement. September 2003): p. R46.
6. Farrell, J., P. North-Lewis, and M. Cross, *Pharmacist prescribing in the United States*. *The Pharmaceutical Journal*, 1997. **259**: p. 187-190.
7. Shefcheck, S. and J. Thomas, *The Outlook for Pharmacist Initiation & Modification of Drug Therapy*. *Journal of the American Pharmaceutical Association*, 1996. **NS36**(10): p. 597-604.
8. Conlan, M.F., *Pharmacist prescribing (coming on strong)*. *Drug Topics*, 1997: p. 62-64, 67.
9. Feil, R.A. and W.N. Jones, *The impact of pharmacist-initiated discharge prescription writing on adverse drug reactions and medical centre drug costs*. *Pharmacotherapy*, 1999. **19**(4): p. 509.
10. *Pharmacist applicants for WFC funding for supplementary prescribing courses*. 2003, London, Eastern & South East specialist pharmacy services.
11. *Medicines, ethics & practice- A guide for pharmacists*. Vol. 27. 2003, London. 128.
12. *Discharge from hospital: pathway, process and practice*. 2003, Department of Health: London. p. 1-116.
13. Ketley, D., M.J. Qualie, and B.D. Godfrey, *The near patient clinical pharmacist 1. From design to pilot*. *The Pharmaceutical Journal*, 1998. **261**: p. 247-249.
14. Qualie, M.J., B.D. Godfrey, and D. Ketley, *The near patient clinical pharmacist 2. From pilot to service*. *The Pharmaceutical Journal*, 1998. **261**: p. 287-289.
15. Culshaw, M. and S. Dawes, *Assessing the value of a discharge pharmacist*. *Pharmacy Management*, 1998. **14**(2): p. 22-23.
16. Jacklin, A., K. Patel, and O. Almossawi, *A discharge pharmacist service improves the timeliness, quality and cost of discharge*. *Pharmacy in Practice*, 2001. **11**(April 2001): p. 100-102.
17. *A spoonful of sugar -Medicines management in NHS hospitals*. 2001, Audit Commission.
18. Barrett, J.M. and B. Hebron, *An examination of the impact of a ward-based pharmacist on the ability of a diabetes medical ward to cope with winter pressures*. *The Pharmaceutical Journal*, 2002. **268**: p. 28-31.

19. UK Drug Information Pharmacists' Group Directory. 1997-98.
20. Grice, P., *Chemist & Druggist Directory*. 1998: London: Miller Freeman.
21. *Review of prescribing, supply and administration of medicines, final report*. 1999, Department of Health.
22. *The Medicines Act*. 1968.
23. Hamley, J.G., *Pharmacists as prescribers*. *The Hospital Pharmacist*, 1997. **4**: p. 2.
24. Raffaitin, J., *Patient group directions and the law*. *The Pharmaceutical Journal*, 2000. **265**: p. 851-852.
25. *One-stop dispensing, use of patients' own drugs and self-administration schemes*. *The Hospital Pharmacist*, 2002. **9**: p. 81-86.
26. Farrar, K., *Time to review prescribing in hospitals by preregistration house officers*. *The Pharmaceutical Journal*, 2002. **268**: p. 136.
27. *Building a safer NHS for patients*. 2001, Department of Health: London.
28. Williams, C., *Electronic prescribing can increase efficiency of the discharge process*. *Hospital Pharmacist*, 2000. **7**(8): p. 206.
29. Leech, D., *Patient directed pharmacy services- do they benefit their patients?* *Hospital Pharmacist*, 2000. **7**: p. 263-264.
30. Leech, D., *New roles for pharmacy technicians at the William Harvey Hospital*. *Hospital Pharmacist*, 2000. **7**: p. 30-32.
31. Taheny, K., et al., *Influence of patient focused care on managing medicines for discharge*. *The Pharmaceutical Journal*, 1999. **262**: p. 368-371.
32. Health, D.o., *Supplementary prescribing by nurses and pharmacists within the NHS in England -a guide for implementation*. 2003, Department of health: London.
33. Norris, C., V. Thomas, and P. Calvert, *An audit to evaluate the acceptability of a pharmacist electronically prescribing discharge medication and providing information to GPs*. *The Pharmaceutical Journal*, 2001. **267**: p. 857-859.

## Tables:

Authorisation method	Frequency (%)
Doctor always signs the in-patient chart	4 (8)
Doctor sometimes signs the in-patient chart	6 (13)
Doctor signs a separate authorisation form	4 (8)
Doctor authorises discharge prescription in medical notes	3 (6)
Doctor verbally authorises the discharge prescription	7 (15)
Doctor writes information on the in-patient chart about discharge	2 (4)
No alternative authorisation method used	27 (56)

**Table 1:** *Methods of authorisation of pharmacist-written discharge prescriptions by the doctor (**other than** counter-signing the discharge prescription).(n=48)*

Reason	Frequency (%)
Speed up the discharge process	35 (73)
Improve accuracy/decrease errors	24 (50)
Reduce junior doctor time	16 (33)
Increase efficiency in dispensing process	9 (19)
Cost savings Re: use of PODs	7 (15)
Enhance pharmacist role/job satisfaction	6 (13)
Improve communication with primary care	5 (10)
Decrease waste prescribing	4 (8)
Increased counselling opportunities	2 (4)
Decrease nursing time	2 (4)
Risk management	1 (2)
Improve patient care	1 (2)

**Table 2:** *Reasons FOR provision of a PDPTS (n=48)*

Reason	Frequency (%)
Insufficient resources	18 (62)
Other services being developed preferentially	7 (24)
No plans/Discussion as yet about providing PDPTS	6 (21)
Lack of funding	4 (14)
Electronic prescribing system under development, so not applicable	4 (14)
Viewed as an administrative role	2 (7)
Service would be for the doctor's benefit only	1 (3)

**Table 3:** *Reasons NOT to provide PDPTS. (n=29)*

## **Supplementary prescribing by pharmacists in England**

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## **Abstract**

*Purpose* To provide information on the implementation of supplementary prescribing by pharmacists within primary and secondary care in England.

*Methods* Postal questionnaire survey of chief pharmacists within secondary care and primary care trust pharmacists in primary care in England.

*Results* The response rate was 68% for both surveys. Both sectors intended to implement supplementary prescribing by pharmacists by the end of 2005 (57%, n=55 and 56%, n=100 respectively).

The majority of the chief pharmacists did not believe that it would be more difficult to recruit designated medical practitioners (DMPs) to supervise supplementary prescribing training for pharmacists as opposed to nurses (67%, n=43), whereas the largest group of primary care trust pharmacists did think this would be the case (47%, n=86). Reasoning included "GPs do not understand a pharmacist's skills/ do not have an established relationship with them", "Pharmacists are viewed as being business focused/ non-NHS" and "pharmacists are seen as a threat."

Within secondary care, the clinical areas in which pharmacists were intending to work as supplementary prescribers were those where they already had established roles. Within primary care, the main clinical areas for pharmacists were influenced by those areas in the new General Medical Services (GMS) Quality and Outcomes Framework for general practitioners (GPs).

*Conclusion* Although the intentions of chief pharmacists and primary care trusts are very similar in terms of implementation of supplementary prescribing, the results of this study illustrate that community pharmacists face more obstacles, such as obtaining funding for new prescribing services from the new pharmacy contract.

## **Introduction**

On 21st November 2002, it was announced that supplementary prescribing by nurses and pharmacists was going to become legalized in the United Kingdom, pending legislative changes. [1] Pharmacists started training in England & Wales for supplementary prescribing in spring 2003, [2] and the first pharmacist-written prescription was reported in March 2004. [3] Supplementary prescribing has been defined as “a voluntary prescribing partnership between an independent prescriber and a supplementary prescriber, to implement an agreed patient-specific clinical management plan with the patient’s agreement.” [4] Whereby the independent prescriber is a fully registered medical practitioner or dentist, whose responsibility is to assess patients with undiagnosed conditions and to decide upon the clinical management required for that patient, including prescribing.

(A glossary is included within this paper to define UK-specific terminology.)

It has recently been announced that supplementary prescribing will be extended to registered chiropodists/podiatrists, physiotherapists, radiographers[5] and also optometrists[6].

There are currently 532 registered supplementary prescribing pharmacists (June 2005) out of a total of 44,951(2005) pharmacists on the register (1.2%), however, not all of these may currently be utilizing their new prescribing skills. [7]

This new role has been viewed as a major step forward in the development of the pharmacists role. Although this is the first time that pharmacists are legally able to prescribe, it has been acknowledged that pharmacists had already been “prescribing” and had circumvented problems that arose from the legislative controls upon prescribing, by asking doctors to sign prescriptions that they had written. [8, 9] For example, several UK reports have identified prescribing roles such as in pre-admission clinics, to obtain patient medication histories and to write the in-patient drug charts as well as the discharge prescription according to set protocols[10-12], outpatient clinic prescribing,[13]and writing discharge prescriptions[14-17]. The model of supplementary prescribing may not be suitable for all of these prescribing roles, especially writing discharge prescriptions.

The development of the prescribing role for pharmacists parallels practice issues in other countries, notably the establishment of collaborative practice agreements in the USA. The development of supplementary prescribing has been informed by this collaborative drug therapy management model. In this model, the pharmacist has a collaborative arrangement with a physician to dependently prescribe certain medications as agreed in a management plan. [18-20] In some cases, clinical pharmacy specialists are also prescribing independently, especially in veteran’s affairs medical centres, which allow greater freedom to prescribe under locally agreed protocols.[21, 22]

Since some pharmacists in the USA have been involved in prescribing medications for patients as part of drug therapy management services for

such a long time, much has been learnt from their experiences in the development of pharmacist prescribing in the UK. Experience in the USA has also shown that even when legislation is in place for pharmacist prescribing to take place, certain barriers, such as establishing a working relationship with physician colleagues, have to be overcome in order for a successful service to be developed.[23] With the aid of such experience, it is hoped that the introduction of supplementary prescribing in the UK will be more straightforward.

The supplementary prescribing training programme comprises at least 26 taught days (25 for pharmacists) at a higher education institution and 12 days "learning in practice". This time would normally be spread over a period of 3 to 6 months. [4] The time spent "learning in practice" is supervised by a medical practitioner, who is known as the "Designated Medical Practitioner."

A nurse wishing to train as a supplementary prescriber must be a 1<sup>st</sup> level registered nurse or registered midwife, should have the ability to study at undergraduate degree level, at least 3 years post-registration clinical nursing experience, will usually be E grade or above and have the support of their employer.[4]

A pharmacist wishing to train as a supplementary prescriber must be fully registered, have the ability to study at a minimum of undergraduate degree level, have at least 2 years experience as a pharmacist post registration and the support of their employer. [4]

A chiropodist/podiatrist, physiotherapist or radiographer must have the ability to study at a minimum of undergraduate degree level, and must have at least 3 years relevant post qualification experience and have the support of their employer[5] (It is anticipated that optometrists will have similar training requirements).

The supplementary prescriber is responsible for the continuing care of patients who have been clinically assessed by an independent prescriber. This continuing care may include prescribing, which will usually be informed by clinical guidelines and will be consistent with individual treatment plans; or continuing established treatments by issuing repeat prescriptions, with the authority to adjust the dose or dosage form according to the patient's needs and as defined by a clinical management plan. There should be provision for regular clinical review by the assessing clinician. [24]

Supplementary prescribing is primarily intended for use in managing specific chronic medical conditions which must be specified in the clinical management plan.

It is intended that supplementary prescribing will provide patients with quicker and more efficient access to medicines, and make the best use of the skills of trained nurses and pharmacists. It is also hoped that the process will help to release doctors time so that they can concentrate on patients with more complicated conditions and more complex treatments. [4]

Although medicines legislation permits the introduction of supplementary prescribing across the UK, it is for the devolved administrations in Scotland,

Wales and Northern Ireland to decide whether and how it is implemented for the NHS in their countries. [4]

Further detail upon supplementary prescribing can be found at the Department of Health's website. [25]

There is no national strategy to guide which clinical areas supplementary prescribers should practise in, or where areas of expertise should be developed. Without this, development of supplementary prescribing will happen in an ad hoc way. [26] This represents a missed opportunity to target these extra prescribing resources upon health areas that need improvement within the population, such as heart disease. Therefore it is important to establish which clinical areas pharmacists and nurses are using their supplementary prescribing qualification in, so that it may be possible to start considering whether the clinical areas are most beneficial from a strategic viewpoint. Chiropodists/podiatrists, physiotherapists, radiographers and optometrists will use their prescribing skills in very narrow, specialist areas, it is therefore not expected that there will be any overlap of their prescribing area with other non-medical prescribers.

Although supplementary prescribing has been a very topical subject in the pharmacy profession, there is no information available yet on how supplementary prescribing is currently being implemented within primary and secondary care, and in which clinical areas. Also the further role extension to independent prescribing (where the pharmacist/ nurse/ other health care professional has full responsibility for the diagnosis, monitoring and on-going treatment of a specified patient's condition) will benefit from the experience gained with supplementary prescribing. It is estimated that the legislation for independent prescribing by pharmacists will be in place by the end of 2005, [27] after the consultation period finished in May 2005[28].

The main differences between pharmacist prescribing in the USA and the UK are that in the UK, supplementary prescribing represents a more co-ordinated, centralized approach, where the same model is being used nationally, with an associated formal training process and stipulated competencies (in areas including communication, consultation skills and diagnostic skills) that the pharmacist needs to achieve in order to qualify as a supplementary prescriber. Unlike the USA, where the pharmacist prescriber needs to be credentialed by their individual institution[23] to provide drug therapy management services, in the UK, once the pharmacist has attained the supplementary prescriber qualification, they can move to any secondary or primary care trust and the supplementary prescriber qualification will be recognized (However, the non-medical prescriber does always need to prescribe within the limits of their own competencies).

Collaborative practice protocols are very similar to the clinical management plan (CMP) that is used in supplementary prescribing, but a CMP has to be written individually for each patient that is seen, and also has to be agreed by the patient and the independent prescriber. Therefore rather than a general protocol being produced which applies to all patients being seen with a

certain condition, the CMP is very much a tailored document for each patient that is seen by the non-medical prescriber.

The objectives of this research work were to establish how chief pharmacists in secondary care, and primary care pharmacists in primary care, were implementing pharmacist supplementary prescribing within their trusts. The study would also provide detail on the numbers of pharmacists who were being trained as supplementary prescribers, which type of pharmacists were being trained and the therapeutic area they would be working in.

## **Methods**

A questionnaire was designed which was sent to pharmacists in primary and secondary care trusts who would be overseeing implementation of supplementary prescribing by pharmacists.

Within secondary care, the chief pharmacist of the trust would be responsible for this, whereas for primary care, the person who would manage the development of supplementary prescribing was less clear.

General practices in England are grouped into primary care trusts (PCTs) which hold the healthcare budget (for both primary and secondary care) for approximately 120,000 patients. [29] The PCT can invest in, develop and commission primary and community care health services.<sup>17</sup> Pharmacists are employed by PCTs to control drug prescribing budgets. Some primary care pharmacists are entitled “pharmaceutical advisors” whose role also includes policy development. Most work with individual GPs to assist with drug audits and medication review.

The establishment of this new professional group of pharmacists was not linked to a deliberate plan or change in health policy with respect to pharmacist development. [29] Therefore not all PCTs in England employ a pharmacist, or may employ them only on a sessional basis. Therefore it was decided to aim the questionnaire at a more generic title of “primary care trust pharmacist” if there was not a named pharmaceutical adviser available. If a PCT did not employ a pharmacist, then they were not included in the survey.

The survey was limited to acute secondary care NHS trusts and primary care trusts in England as the health care provision is set up differently in Wales, Scotland and Northern Ireland.

### **Questionnaire development**

Construction of the questionnaire was aided by literature review. A list of pharmacists holding important positions in England (policy-making/academic) were also identified, and asked to advise on key questions with respect to supplementary prescribing.

Unstructured interviews were then held individually with a clinical governance lead, a nurse educator on a supplementary prescribing course, a chief executive of a hospital and a clinical governance co-ordinator (n=4) in order to develop a more detailed perspective on the issues and risks surrounding the development of supplementary prescribing.

These data were then used to suggest topics for discussion at a focus group (n=4). The focus group was arranged in order to more clearly define the key areas which the questionnaire ought to investigate. The focus group’s participants included a professor of pharmacy practice, a nurse senior lecturer who had developed a supplementary prescribing training course, a chief pharmacist and a clinical governance lead. The focus group were asked to discuss issues surrounding the risks and benefits of supplementary

prescribing, and also its implementation. Issues surrounding the designated medical practitioners (such as availability and quality) were also discussed along with responsibility and accountability. The data from this focus group was audiotaped and transcribed verbatim. The data was then reviewed systematically in order to refine developing categories of data. Key themes that emerged from this data were used to develop the questions in the questionnaire.

One questionnaire was designed for chief pharmacists (CP) of secondary care acute hospital trusts, and a very similar questionnaire, with minor differences in orientation, was designed for primary care trust pharmacists (PCTP). The questionnaire was divided into three sections. Section A contained closed questions which inquired about demographic data about themselves and their trust. Section B contained mostly closed questions and one open question about recruitment of designated medical practitioners. This section inquired about the implementation of supplementary prescribing within the trust and Section C used closed questions in the format of a Likert scale in order to measure the respondent's attitude to a number of statements about supplementary prescribing. Detailed results from section C of this questionnaire will be discussed in a further publication. Confidentiality was maintained by number-coding the questionnaires.

Advice from a medical statistician and also ethical permission for the study was sought and obtained (from multi-centre research and ethics committee (MREC)).

### **Validation and piloting**

In order to assess face validity of the secondary care questionnaire, one CP was observed whilst completing the questionnaire and discussed any ambiguities that arose with the researcher, and another CP completed the questionnaire and posted it back with written comments. Minor adjustments were therefore made to the question structure to clarify these ambiguities. Although this process does not constitute full validation, face validity was further assessed in responses to the pilot questionnaire for both primary and secondary care.

In order to validate the primary care questionnaire, one PCTP completed the questionnaire and provided feedback via telephone and the other PCTP completed the questionnaire and provided written feedback.

Reliability of the survey tool cannot easily be tested (test-re-test reliability) as it would produce survey fatigue if re-tested in the same, limited, population.

During February & March 2004, the secondary care questionnaire was piloted in 17 randomly selected hospitals from the sample (n=168).

At the same time, the primary care questionnaire was piloted in 30 randomly selected pharmacists from the sample (n=303). Several amendments were made to the questionnaire after piloting. Some questions were removed in

order to reduce the length of the questionnaire and some questions had extra options added or removed from them. Therefore, data collected from the pilot questionnaires were not included in the final analysis.

## **Main Survey**

Both questionnaires were distributed in May 2004. The secondary care questionnaire was posted to CPs within every NHS trust in England providing acute hospital services. Single hospitals within each trust were identified using a combination of the Chemist & Druggist Directory[30] and the Guild of Healthcare pharmacists' chief pharmacist mailing list [31]. The questionnaire was randomly sent to one hospital from each trust, (using a random number generator). Responding hospitals which had merged with another trust were removed from the study.

The primary care questionnaire was sent to the named PCTP/pharmaceutical advisor within each primary care trust (a questionnaire was not sent to the primary care trust if they did not employ a pharmacist) in England. The primary care trusts and named pharmaceutical advisers/PCTP were identified using Medendium[32].

Following piloting, a total of 151 hospital pharmacy departments were included in the main study. Eight of these hospitals were removed from the study after it was established that they had merged with another trust or were not an acute trust, leaving 143 hospitals for the study.

For primary care, after piloting, 273 primary care trusts were included in the main study. Two of these trusts were removed from the study after it was established that they were not a primary care trust or did not have a pharmacist employed as a pharmaceutical advisor. This left 271 primary care trusts eligible for the study.

The questionnaires were accompanied by a letter to explain the study and a freepost envelope was included for return of the questionnaire.

Follow-up was via a second mail shot of the questionnaire to non-responders after 3 weeks, and then a telephone follow up after a further 4 weeks (secondary care) or another questionnaire mail shot (primary care). After a further 3 weeks a last mail-shot of the questionnaire was sent out to any remaining non-responders. A final deadline for accepting returned questionnaires was set at 13 weeks after the questionnaires had originally been posted.

The larger sample size in the primary care group required the use of postal (rather than telephone) follow up.

The data was also analyzed by region/strategic health authority that the hospital or primary care trust (PCT) was from in order to assess whether there were any poor responses from particular regions.

Data obtained from returned questionnaires were coded and analyzed using the Statistical Package for the Social Sciences (SPSS) version 11, and the



significance of the association between variables was assessed using the non-parametric tests chi-squared, Kruskal-Wallis, Mann-Whitney U and bivariate correlations (Spearman's rho), where appropriate.

## **Results**

### **General demographics**

Of the 143 hospitals, responses were received from 97 (68% response rate) and for the primary care trusts (n=271), responses were received from 183 (68% response rate).

No particular patterns emerged when assessment of response rate from regions was undertaken.

### **Secondary care**

Sixty-two per cent of responses (n= 58) came from CPs of district general hospitals, 35 per cent (n=33) from teaching hospitals and 3 per cent (n=3) from tertiary specialist hospitals.

The size of the hospitals varied, with bed sizes ranging from 201-400 to >1500, with the most common ranges being 401-600 (25%, n=23) and 1001 to 1500 (25%, n= 23).

Other demographic data can be found in Table 1.

### **Pharmacist supplementary prescribing**

#### **Secondary care**

When asked about their intentions to implement supplementary prescribing by pharmacists, the majority of CPs stated that they intended to implement the service by the end of 2005 (57%, n= 55) and 14 per cent (n=14) stated that they were not going to implement supplementary prescribing by pharmacists by the end of 2005. Some CPs did not know what their intentions were (29%, n= 28).

The total number of pharmacists employed by the trust was found to have a significant influence upon the intention to implement supplementary prescribing by pharmacists ( $p=0.004$ , kruskal-wallis test,  $df=3$ ). Therefore, as the number of pharmacists employed by the trust increased, it was more common to intend to implement supplementary prescribing.

The CPs who intended to implement pharmacist supplementary prescribing planned to train between 0 to 14 pharmacists (mean  $\pm$  S.D.=  $3 \pm 3$ ) during 2004, and between 1 to 24 pharmacists (mean  $\pm$  S.D.=  $3 \pm 4$ ) during 2005.

There was a significant relationship between the number of pharmacists to be trained as supplementary prescribers during 2004 and the number of hospital beds that the hospital has, with the highest mean rank being for those hospitals with 601-800 beds ( $p=0.012$ , Kruskal Wallis test,  $df=5$ ), this was also found to be the case for 2005 ( $p=0.003$ , Kruskal Wallis test,  $df=5$ ).

There was also a moderate positive correlation between the total number of pharmacists employed by the trust and the number of pharmacists to be trained as supplementary prescribers during 2004 ( $r=0.54$   $n=39$   $p=0.000$ ), again this was also found to be the case for 2005 ( $r=0.57$   $n=36$   $p=0.000$ ).

With respect to the total number of pharmacists to be trained during 2005, a significant relationship was also found between this and the hospital type, with teaching hospitals being significantly more likely to train more pharmacists in 2005 than other hospital types ( $p=0.026$ , kruskal-wallis test,  $df=2$ )

When asked which grade of pharmacist(s) they intended to train as supplementary prescribers, the majority of CPs stated D grades (85%,  $n=46/54$ ) followed by E grades (70%,  $n=38/54$ ) (missing data=1) The different clinical areas of supplementary prescribing targeted by CPs are presented in Table 2.

A significant relationship was found between the total number of pharmacist supplementary prescribing activities being offered and the type of hospital, with teaching hospitals more likely to be offering more pharmacist supplementary prescribing activities ( $p=0.007$ , kruskal-wallis test,  $df=2$ ).

There was a moderate positive correlation between the total number of pharmacists employed by the trust and the total number of pharmacist supplementary prescribing activities being offered ( $r=0.59$   $n=43$   $p=0.000$ ).

A moderate positive correlation was also found between the total number of pharmacist supplementary prescribing activities being offered (i.e. the different clinical areas) and the total number of non-supplementary prescribing pharmacist prescribing activities being undertaken currently ( $r=0.53$   $n=35$   $p=0.001$ ).

The person who will assume responsibility for prescribing if the SP is away was most commonly a junior doctor (56%,  $n=30/54$ ), followed by a consultant (39%,  $n=21/54$ ) or another pharmacist supplementary prescriber (37%,  $n=20/54$ ). Some CPs indicated that no cover would be provided for the service (24 per cent,  $n=13/54$ ) or that they didn't know how the service would be covered (13 per cent,  $n=7/54$ ) (missing data=1).

Additional training requirements (additional to the standard supplementary prescribing training) most commonly included a period of clinical experience in the clinical area that the pharmacist supplementary prescriber would be working in (89 per cent,  $n=49/55$ ), followed by possession of a clinical diploma (73%,  $n=40/55$ ) and undertaking the Royal Pharmaceutical Society of Great Britain's (RPSGB's) continuing professional development (CPD) requirements (55%,  $n=30/55$ ).

### Primary care

When asked about their intentions to implement supplementary prescribing by pharmacists, the majority of PCTPs stated that they intended to implement the service by the end of 2005 (56%,  $n=100$ ) and 9 per cent ( $n=17$ ) stated that they were not going to implement supplementary prescribing by pharmacists by the end of 2005. Some PCTPs did not know what their intentions were (35%,  $n=63$ ).

The total number of pharmacists employed by the trust was found to have a significant influence upon the intention to implement supplementary prescribing by pharmacists ( $p=0.008$ , kruskal-wallis test,  $df=3$ ).

The PCTPs who intended to implement pharmacist supplementary prescribing intended to train between 0 to 6 pharmacists (mean and standard deviation=  $2 \pm 1$ ) during 2004, and between 1 to 10 pharmacists (mean and standard deviation=  $3 \pm 2$ ) during 2005. No statistically significant relationships were found to affect the numbers of pharmacists to be trained in 2004 or 2005.

When asked which type of pharmacist they were going to train as supplementary prescribers, the most common response was primary care based pharmacists (in PCT's) (67%,  $n=68/102$ ) followed by general practitioner (GP) practice-based pharmacists (55%,  $n=56/102$ ) and then community pharmacists (45%,  $n=46/102$ ) (missing data=3).

The different clinical areas of supplementary prescribing that the primary care trust pharmacists were going to implement pharmacist supplementary prescribing in are presented in Table 2.

No significant relationships were found to affect the total number of pharmacist supplementary prescribing activities on offer.

The person who will assume responsibility for prescribing if the SP is away was most commonly intended to be a GP (37%,  $n=38/102$ ) followed by a nurse supplementary prescriber (21%,  $n=21/102$ ) or a pharmacist supplementary prescriber (15%,  $n=15/102$ ). A large proportion of PCTPs indicated that no cover would be provided for the service when the pharmacist was away (32%,  $n=33/102$ ) or that they didn't know how the service would be covered (26 per cent,  $n=26/102$ ) (missing data=3).

Additional training requirements (additional to the standard supplementary prescribing training) included most commonly undertaking the Royal Pharmaceutical Society of Great Britain's (RPSGB's) continuing professional development (CPD) requirements (64%,  $n=65/101$ ) followed by a period of clinical experience in the clinical area that the pharmacist supplementary prescriber would be working in (60%,  $n=61/101$ ) and possession of a clinical diploma (50%,  $n=50/101$ ) (missing data=4).

## **Supplementary prescribing implementation**

### Secondary care

The factors affecting recruitment of designated medical practitioners are presented in Table 3.

The CPs were then asked whether in their own opinion, it will be easier to recruit designated medical practitioners (DMP) for nurses rather than pharmacists. The majority of the CPs did not agree with this statement (67%,  $n=43$ ). Thirty-three percent ( $n=21$ ) did agree with the statement, and 30% ( $n=29$ ) did not know (missing data= 4). The most common reasons given amongst those who agreed with the statement was that nurses already have

an established working relationship with doctors (50%, n=8), followed by nurses are already working as prescribers (31%, n=5). A wider range of reasons were given amongst those who disagreed with the statement, including, that the problems are identical for both professions (31%, n=8), that it would be dependent on the relationship with the DMP and the benefit to the DMP (27%, n=7), and that pharmacists are highly specialized and well regarded (23%, n=6).

### Primary care

The factors affecting recruitment of DMPs are presented in Table 3.

The PCTPs were asked who would be charged with taking forward pharmacist supplementary prescribing within their trust. The results are presented in Table 4.

The PCTPs were then asked whether in their own opinion, it would be easier to recruit designated medical practitioners for nurses rather than pharmacists. The majority of PCTPs agreed with this statement (47%, n=86) Twenty-eight percent (n=50) did not agree with this statement and 25% (n=46) did not know (missing data=1).

A wider range of reasons were given amongst those who agreed with the statement, including, that nurses already have an established working relationship with doctors (87%, n=69), followed by nurses are already working as prescribers (27%, n=21). Respondents also stated that GPs do not understand pharmacist's skills and have no relationship with them (15%, n=12), that it would be more difficult for employees of trusts (11%, n=9) and that pharmacists are viewed as being business focused or non-NHS (10%, n=8).

The most common reasons given amongst those who disagreed with the statement was that the problems are identical for both professions (48%, n=13), that pharmacists have good working relationships (26%, n=7) that it would be dependent on the relationship with the DMP and the benefit to the DMP (15%, n=4), and that it depends on whether the person is a trust employee (15%, n=4).

## **Discussion**

### **Pharmacist supplementary prescribing**

The percentage of CPs and PCTPs intending to implement supplementary prescribing by the end of 2005 was similar. Within primary care, it was most common for primary care trust and general practitioner (GP) based pharmacists to be trained as supplementary prescribers rather than community pharmacists. This observation suggests that there are some potential obstacles for community pharmacists when it comes to developing this role. These obstacles can include lack of on-line access to the patient's medical records, lack of a private area within the community pharmacy for the consultation to take place, difficulties in establishing funding for developing the service from the PCT and also lack of an established good working relationship with local GPs. It is therefore apparent that for community pharmacists to fully develop this opportunity to prescribe and develop services for patients, they have a lot more barriers to overcome than pharmacists in secondary care.

When it comes to provision of cover for the pharmacist supplementary prescribing service in secondary care, it was most commonly being provided by junior doctors. However, it has been suggested that provision of a pharmacist service would provide a more superior prescription service in terms of safety and overall quality of the prescriptions[15, 33-36]. Therefore would it be acceptable for the annual leave, sickness cover and over-night/weekend cover to be provided by a more inferior service? The aim should be to provide 24 hour service provision if the prescribing service is being provided for in-patients, however, with limited pharmacist numbers, this would be unfeasible for most hospital trusts.

The most common clinical areas that were being served by supplementary prescribing pharmacists in secondary care reflect those areas where pharmacist prescribing input has already been established (Table 2).

Total parenteral nutrition (TPN) is the most common area that CPs were training pharmacists to be supplementary prescribers in, and there have already been reports of trained supplementary prescriber pharmacists working in this area.[37, 38] This is an area where pharmacists have a long established role as part of nutrition teams within most hospitals[39], and also have a key input in the individual composition of TPN prescriptions for patients. Pharmacists have also had established roles in the areas of oncology/haematology, cardiology and anticoagulation, [38, 40-50] so it is not surprising to see these clinical areas amongst those where pharmacists are prescribing.

It is also not surprising to see therapeutic areas such as renal, rheumatology, HIV and care of the elderly as areas where pharmacists are being trained as supplementary prescribers[37, 38, 42, 51]. These again, are areas where

pharmacists have long had established clinical roles in [52, 53] and also are areas where pharmacist prescribing is well suited due to the polypharmacy, complexity of the medication (e.g. numerous drug interactions) and multiple concurrent conditions that are often associated in these conditions/areas.

Some therapeutic areas that are being targeted for SP have associated NSFs and other published national guidance available.

The publication of the National Service Framework for older people [54] which sets standards in care, recommended that all elderly people should normally have their medications reviewed at least annually, and for those taking four or more medicines should have a review 6 monthly, and that older people should get more help from pharmacists in using their medicines. Therefore one would expect that this area would be targeted for pharmacist supplementary prescribing.

The National Service Framework for Renal Services was published in January 2004[55], which emphasizes the extensive role that pharmacists can have in optimizing medication in this area. So again, this would be an expected area for pharmacists to become supplementary prescribers in.

Another therapeutic area that was commonly identified as being one where pharmacists were being trained as supplementary prescribers was for surgical/orthopaedic pre-admission clinics. As described for the other therapeutic areas, pharmacists had a well developed role in this area before the advent of supplementary prescribing. Pharmacists were involved in taking medication histories, writing the patients current medication onto the in-patient drug chart during these clinics, and also following protocols for standard antibiotic prophylaxis and thromboprophylaxis to be written onto the in-patient drug chart as well[9-12, 56-59]. Therefore by training pharmacists as supplementary prescribers it will negate the need for the doctor to co-sign the in-patient drug charts and will legitimize roles that are already being undertaken.

Primary care has focused its supplementary prescribing training on quite different areas from secondary care. This may be due to the implementation of the new General Medical Services (GMS) contract in April 2004, for GPs. [60] In this new contract, payment for their services focuses upon improving the overall quality of clinical care for their patients. Within the GMS contract, the Quality and Outcomes Framework specifies disease categories where more comprehensive service provision will be rewarded with more substantial payments. The top five clinical areas that have been identified for primary care pharmacist supplementary prescribers (Table 2) are all areas which have been specified in the Quality and Outcomes Framework – Hypertension, coronary heart disease (CHD)/hyperlipidaemia, diabetes mellitus, asthma and COPD. Therefore GP practices will be targeting development of services in these areas in order to enhance their payments.

These areas are also subject to detailed guidance published over the past few years in the form of National Service Frameworks (NSFs), (the coronary heart disease NSF was published in March 2000, [61] the diabetes NSF in 2001[62]) and also specialist guidelines developed by the British Thoracic Society and the Scottish Intercollegiate Guidelines Network for Asthma [63] and National Institute for Clinical Excellence (NICE) guidelines for COPD[64], and by the British Hypertension Society for hypertension. [65] Therefore these clinical areas are extremely suitable for pharmacists to undertake supplementary prescribing as the clinical management plans can refer to these national guidelines for the pharmacist to follow.

Pharmacist supplementary prescribing in mental health appears to be an uncommon therapeutic area in both primary and secondary care, which is rather surprising considering that it is a clinical area identified in the Quality and Outcomes Framework, and that there is a National Service Framework[66] for this therapeutic area.

The United Kingdom Psychiatric Pharmacy Group (UKPPG) and College of Mental Health Pharmacists (CMHP) have published a statement upon their position with respect to supplementary prescribing. [67] They are advising their members that they believe that in order to be a competent supplementary prescriber in mental health they require membership of CMHP on top of the normal supplementary prescribing training requirements. This is the only specialist clinical pharmacy group to have any additional requirements. This may have a negative effect upon pharmacists wishing to become supplementary prescribers in this area, or alternatively reflects an attitude within mental health that prescribing in this area is more complex than other therapeutic areas.

Primary care respondents indicated that provision of cover for the pharmacist supplementary prescriber services would be provided by a nurse supplementary prescriber in preference to another pharmacist supplementary prescriber, if a GP was not going to be used. This may be due to primary care having a large resource of qualified nurse supplementary prescribers, and also because the therapeutic areas that most pharmacists are going to work in have clear, detailed guidance available, and are not as complex areas as some of the therapeutic prescribing areas in secondary care.

However, it also suggests that no distinction is being made between the type of prescribing that a pharmacist in e.g. a cardiac clinic will undertake compared to that by a nurse. Therefore if the type of prescribing is identical by both professions then a nurse would be chosen to run a clinic in preference to a pharmacist because the salaries for experienced clinical pharmacists and community pharmacists are higher than nurses. This means pharmacists will have to establish niche areas (such as more complex polypharmacy areas) for their more expensive clinical expertise, and that a distinction will have to be made about what types of clinics the different professions are going to hold in each clinical area.



## Supplementary prescribing implementation

As there is not a standardized competency framework for pharmacists once they have qualified, there is no national differentiation between the skills necessary e.g. to be a clinical pharmacist versus a senior clinical pharmacist. Therefore it is already difficult for doctors to be able to understand the knowledge and competency of different pharmacists at ward level when requesting advice. The development of supplementary prescribing will therefore make it even more difficult for doctors (and other health care professionals) to distinguish between the skills of various pharmacists. Other studies have already suggested that this development will cause confusion. [68] Therefore, recent work has been undertaken in order to develop a competency framework for pharmacists within primary and secondary care. [69] Although this will mean that all pharmacists entitled "senior clinical pharmacist" will have the same skills and competency from trust to trust, it does not help the confusion that may be caused by some pharmacists being able to prescribe and others not.

Community pharmacists will also face difficulties, in terms of understanding which health care professional has which type of prescribing rights when presented with prescriptions by a large range of different health care professionals. It will also cause confusion to the general public, as some community pharmacies will have pharmacists that can prescribe medicines for their e.g. heart condition, but other pharmacies will not. Therefore it is important that the general public are well informed about this development.

Although both primary and secondary care rated time commitment and workload as being the two most important factors affecting recruitment of DMP's, the major difference between primary care and secondary care, was that primary care also highlighted the lack of funding for the role as well. For secondary care, this is not such an issue as all doctors are employees of the NHS, so by taking up the role of DMP, it is helping the organization that they are paid by. Also in the majority of cases, it will also help their own clinical area as well, by releasing the doctor's time to deal with more complex cases, and improving access to services for patients.

For primary care, GPs receive payment individually according to the services they offer. Therefore in order to supervise a supplementary prescribing trainee, the GP may expect to receive payment for it, unless there is a clear business case presented to their practice, outlining the benefits from the service that will be provided. Therefore this may make it difficult for those nurses and pharmacists who are not employees of a practice to actually recruit a DMP to supervise their training.

When asked whether recruitment of DMPs would be more difficult for pharmacists rather than nurses, the majority of chief pharmacists disagreed with this statement, but the majority of primary care trust pharmacists agreed

with it. Other than the reasons outlined above, in primary care, pharmacists also have less day to day contact with doctors than pharmacists in secondary care, which may mean that GPs do not fully understand the skills that pharmacists have, and therefore do not see the potential for development of pharmacist prescribing services. Upon examination of their reasoning, reasons such as “GPs do not understand a pharmacist’s skills/ do not have an established relationship with them”, “Pharmacists are viewed as being business focused/ non-NHS” and “pharmacists are seen as a threat” certainly illustrate the need for pharmacists in primary care/community pharmacy to develop closer working relationships with their local GPs to overcome these barriers.

The person(s) in charge of taking forward supplementary prescribing for pharmacists in primary care are quite varied (Table 4). For primary care this array of different people will inevitably lead to different PCTs having different priority levels for implementation of this development and also extensiveness of implementation will vary considerably. The implementation will also be affected by the new community pharmacy contract, which is in the process of being implemented. [70] The first and second tiers of the contract are termed essential and advanced services, and these services will be funded via a national agreement. However, the third tier of enhanced services, which may include supplementary prescribing services, will be commissioned by PCTs. So if a PCT does not see a need for a particular service, pharmacists will not get paid for providing it. [71]

Again, it is essential for community pharmacists to make their PCTs aware of the services they are capable of providing and the benefits that can be derived from such services for the local population.

It has been suggested that further reorganization of PCTs will happen now that the general election has occurred, whereby mergers of PCTs would reduce their number from 303 to 100-150 across England. This is because there is a growing belief that many trusts are perhaps ineffective organizations, unable to commission acute healthcare effectively and unable to fulfill public health responsibilities. [72] If this reorganization happens, then the commissioning of enhanced services for pharmacies may be even more difficult until PCTs have settled any structural reorganization.

The development of supplementary prescribing services will also need to make sense for community pharmacy businesses as well. Although many multiple pharmacy businesses have been able to offer services such as cholesterol testing for free, smaller, independent pharmacies cannot offer such services without recompense. It is extremely important that pharmacy businesses maintain a united front when negotiating payment for supplementary prescribing services from PCTs.

The lack of national strategy to guide which therapeutic areas are more in need of pharmacist supplementary prescriber’s input may mean that some

patient groups may still have reduced access to services, and that doctors working within these areas will still have unmanageable workloads and waiting lists. It would therefore seem sensible for Department of Health guidance to be made available, suggesting target areas where this role development is more urgent than others.

The way in which supplementary prescribing is being implemented in primary and secondary care suggests that one model of non-medical prescribing may not be the “one-size fits all” answer that had been hoped for. Primary and secondary care are very different in terms of funding, inter-professional relationships and methods of working, which means that slightly different models of non-medical prescribing may be needed. Due to the necessity of producing a clinical management plan for the patient’s condition that is being treated by the pharmacist SP, SP is more suited for the management of chronic conditions in primary care rather than acute conditions that are seen in secondary care.

The reasoning for implementing supplementary prescribing also needs to be questioned. It has been suggested that the main driver relates to resource issues within the NHS and to curb escalating healthcare costs[68] rather than improve quality of prescribing. Therefore further evaluation of the implementation of supplementary prescribing in terms of overall quality of prescribing will be crucial to prove that in the very least, the quality is not inferior to that of medical practitioner prescribing.

The impending development of independent prescribing may well offer more flexibility for secondary care non-medical prescribers, and also overcome some of the highlighted difficulties that community pharmacists will face with respect to supplementary prescribing. Therefore independent prescribing rights may be more welcomed than the current supplementary prescribing model.

## **Critique of method**

The response rate was sufficient when compared to other similar questionnaire surveys[17, 73, 74].

Telephone follow-up of CPs was found to be difficult as these people are extremely busy and therefore secretaries preferred to take a message rather than let the lead researcher speak directly to the CP. This may have reduced the response rate achieved.

For PCTPs, it was noted that the list of named pharmacists in the spring 2003 guide for primary care trusts[32] was often inaccurate. On subsequent mail shots, the named pharmacist was therefore removed and changed to "Primary care trust pharmacist" in order to improve the response rate.

Although it would have been preferable to use the same follow-up methodology for both surveys, due to the larger sample size of primary care trust pharmacists compared to secondary care pharmacists, telephone follow-up was not undertaken for the primary care pharmacists. Instead an extra mail shot was undertaken. This was because it would have taken more time than was available to complete the telephone follow up for such a large sample size. As the same response rate was achieved for both questionnaire surveys it was not anticipated that the slightly different follow-up methodology affected the integrity of the survey results.

## **Conclusion**

Although the intentions of CPs and PCTPs are very similar in terms of implementation of supplementary prescribing, the results illustrate that there are significantly more barriers to its establishment within primary care, especially for community pharmacists.

Within primary care, SP appears to be implemented in order to develop new services. However, within secondary care, the results suggest that the model is being used more often to legitimize services that are already being provided. This suggests that secondary care may well be awaiting the introduction of independent prescribing for pharmacists before developing their prescribing role.

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## Glossary

**1<sup>st</sup> level registered nurse** -a nurse who is registered in sub-part 1 of the nurses' part of the professional register (Nursing and Midwifery Council).

**Chief Pharmacist** -the pharmacy lead for the Trust (Primary or Secondary) in all aspects of pharmacy services.

**Clinical Governance** -the system of steps and procedures adopted by the NHS to ensure that patients receive the highest possible quality of care.

**Clinical Diploma** -a postgraduate course which qualified pharmacists can undertake, which comprises of advanced level clinical pharmacy.

**Community Pharmacist** -a pharmacist who works in a retail pharmacy business. Their role includes supervising the safe dispensing of medicines, provision of advice upon medicines use, health promotion and services to specific patient groups.

**Consultant** -a specialist doctor within secondary care, who has expertise in a certain clinical area. GPs refer patients to consultants for expert advice on the patient's management.

**D Grade Pharmacist** -usually has a postgraduate qualification and at least 5 years of clinical experience. The pharmacist will normally specialize in a clinical area.

**District General Hospital** -the most common type of hospital within the UK, and deals with patients who are acutely ill.

**E Grade Pharmacist** -has more clinical specialism and expertise. Their role may also include some form of staff and budget management

**E Grade Nurse** -usually has a minimum of 6 months post registration experience. Nurses specialise in a clinical area at this level by undertaking post-registration courses.

**Fully registered** -healthcare professionals who have undertaken the required training programme and become recognized as a qualified professional by having their name on their profession's register.

**General Practitioner** A physician whose practice is based on a broad understanding of all illnesses. The first port of call for patients when they are unwell. Based in practices within the local community.

**Junior doctor** -the first year after completion of undergraduate medical training (Pre-registration).

**National Service Framework (NSF)** are long term strategies for improving specific

areas of care. These government documents set out the targets for evidence based medicine in specific disease areas or population groups.

**Primary Care Trust** These control primary health services and consist of GPs and other healthcare professionals. They are responsible for the planning and securing of health services and improving the health of a local population.

**Secondary Care Trust** -are responsible for the provision of Health care services provided by medical specialists, and are found in most large towns and cities.

**Strategic Health Authority** England is split into 28 Strategic Health Authorities. They are responsible for developing strategies for the local health services and ensuring high-quality performance. They manage the NHS locally and are a key link between the Department of Health and the NHS. They also ensure that national priorities (such as programmes for improving cancer services) are integrated into local plans.

**Tertiary Specialist Hospital** Some trusts also act as regional or national centres of expertise for more specialised care, while some are attached to universities and help to train health professionals.

## **References**

1. Wider prescribing powers proposed. 2002, NHS update. [www.nhs.uk/nhsupdate/news.asp?newsid=551](http://www.nhs.uk/nhsupdate/news.asp?newsid=551) (accessed 20.12.02)
2. Root G. Supplementary prescribing-a groundbreaking opportunity. *Pharm J*. 2003. **270**: 19-20.
3. First prescription signed by a hospital pharmacist. *Pharm J*. 2004. **272(7292)**: 369.
4. Department of Health. Supplementary prescribing by nurses and pharmacists within the NHS in England -a guide for implementation. London: Her Majesty's Stationery Office; 2003.
5. Department of Health. Supplementary prescribing by nurses, pharmacists, chiropodists/podiatrists, physiotherapists and radiographers within the NHS in England. London: Department of Health. 2005.
6. Supplementary prescribing extended to optometrists. *Pharm J*. 2005. **275(7357)**: 37.
7. Pharmacist prescribing:the reality. *Pharm J*. 2004. **273(7319)**: 483.
8. Hobson RJ. and Sewell GJ. Responsibility, accountability & factors influencing provision of pharmacist transcription of discharge prescriptions. *Int J Pharm Pract*. 2004. **12**: 163-168.
9. McIntyre F. and Manson K. Pre-admission clinics: extending the delivery of pharmaceutical care. *Pharm J*. 2004. **272**: 478-479.
10. Lord S. The interface- Steps towards seamless care. *Hosp Pharm*. 1999. **6**: 83-84.
11. Hebron B. and Jay C. Pharmaceutical care for patients undergoing elective ENT surgery. *Pharm J*. 1998. **260**: 65-66.
12. Hick H. et al. The impact of the pharmacist on an elective general surgery pre-admission clinic. *Pharm World Sci*. 2001. **23(2)**: 65-69.
13. Booth CD. Pharmacist-managed anticoagulant clinics: A review. *Pharm J*. 1998. **261**: 623-625.
14. Milliken B. and Rea Y. A clinical pharmacist's contribution to discharge planning and patient counselling. *Pharm J*. 1997. **258**: 777-778.
15. Boorman S. and Cairns C. Another way forward for pharmaceutical care: a team-based clinical pharmacy service. *Pharm J*. 2000. **264**: 343-346.
16. Cattell R. Conroy C. and Sheikh A. Pharmacist intergration into the discharge process: a qualitative and quantitative impact assessment. *Int J Pharm Pract*. 2001; **9**: 59-64.
17. Hobson RJ. and Sewell GJ. A national survey of pharmacist transcribing of discharge prescriptions. *Int J Pharm Pract*. 2003. **11**: 89-95.
18. Carmichael JM. et al. Collaborative drug therapy management by pharmacists. *Pharmacotherapy*. 1997. **17(5)**: 1050-1061.



19. Webb CE. Prescribing medications: Changing the paradigm for a changing health care system. *Am J Health Syst Pharm.* 1995; 52: 1693-1695.
20. Galt KA. The key to pharmacist prescribing: Collaboration. *Am J Health Syst Pharm.* 1995; 52: 1696-1699.
21. Farrell J. North-Lewis P. and Cross M. Pharmacist prescribing in the United States. *Pharm J.* 1997; 259: 187-190.
22. Clause S. et al. Prescribing privileges among pharmacists in Veterans Affairs medical centres. *Am J Health Syst Pharm.* 2001; 58: 1143-5.
23. Kuo GM. et al. Collaborative drug therapy management services and reimbursement in a family medicine clinic. *Am J Health Syst Pharm.* 2004; 61: 343-52.
24. Department of Health. Review of prescribing, supply and administration of medicines, final report. London: Her Majesty's Stationery Office; 1999.
25. Department of Health. Department of Health home page. 2004. [www.dh.gov.uk/Home/fs/en](http://www.dh.gov.uk/Home/fs/en) (Accessed 01.06.04)
26. Strategy needed for clinical areas in prescribing. *Pharm J.* 2004. 273(7318): 407.
27. Chief pharmacists: "state of the nation". *Pharm J.* 2004. 273(7319): 484.
28. Consultation on proposals to introduce independent prescribing by pharmacists (MLX 321). London: Medicines and Healthcare products Regulatory Agency; 2005.
29. Silcock J. Raynor DKT. and Petty D. The organisation and development of primary care pharmacy in the United Kingdom. *Health Policy.* 2004; 67: 207-214.
30. Grice P. editor *Chemist & Druggist Directory.* 1998: London: Miller Freeman.
31. Child D. Cantrill J. and Cooke J. Effectiveness of hospital pharmacy: Where is the evidence? *Guild of Healthcare Pharmacists;* 2001.
32. Medendum-informing primary care. 2003; 18. Medendum group publishing Ltd.
33. Culshaw M. and Dawes S. Assessing the value of a discharge pharmacist. *Pharmacy Manage.* 1998. 14(2): 22-23.
34. Jacklin A. Patel K. and Almossawi O. A discharge pharmacist service improves the timeliness, quality and cost of discharge. *Pharm Pract.* 2001. 11(April 2001): 100-102.
35. A spoonful of sugar -Medicines management in NHS hospitals. London: The Audit Commission; 2001.
36. Barrett JM. and Hebron B. An examination of the impact of a ward-based pharmacist on the ability of a diabetes medical ward to cope with winter pressures. *Pharm J.* 2002. 268: 28-31.
37. Bellingham C. How supplementary prescribing helps in both acute and chronic hospital care. *Pharm J.* 2004. 272: 640-1.
38. London pharmacists secure training funds for supplementary prescribing. *Pharm J.* 2003. 271: 399.

39. Murphy A. and Scott A. Artificial nutritional support- what are the options? *Hosp Pharm*. 2000. 7(6): 146-154.
40. Blake D. My career as...a cancer services pharmacist. *Hosp Pharm*. 2004. 11: 146-151.
41. Horne AL. and Dapolite LA. Protocol for pharmacist management of antineoplastic drug-induced adverse effects in outpatients. *Am J Health Syst Pharm*. 1997. 54: 680-683.
42. Prescribing: new opportunities for all. *Pharm J*. 2003. 271: 770.
43. Andalo D. Why one hospital pharmacist ventures into the community to run a CHD clinic. *Pharm J*. 2004. 273: 56.
44. Bellingham C. An insider's view of the supplementary prescribing course for pharmacists. *Pharm J*. 2003. 271: 442.
45. Langleben D. Pharmacist's input into heart failure team reduces readmissions. *Pharm J*. 2002. 269: 60.
46. Pharmacist-led CHD clinic keeps going. *Pharm J*. 2002. 268: 312.
47. Hughes EC. John NR. and Swithenbank PJ. Setting up and evaluating a pharmacist-led outpatient DVT clinic. *Pharm J*. 1999. 263: R66-67.
48. Parekh R. and Ghee C. Evaluation of a pharmacist controlled anticoagulant clinic. *Br J Pharm Pract*. 1987. 9(10): 370-81.
49. Holden J. and Holden K. Comparative effectiveness of general practitioner versus pharmacist dosing of patients requiring anticoagulation in the community. *J Clin Pharm Ther*. 2000. 25: 49-54.
50. Radley AS. et al. Evaluation of anticoagulant control in a pharmacist operated anticoagulant clinic. *J Clin Pathol*. 1995. 48: 545-7.
51. National Service Framework for renal services. *Pharm J*. 2004. 272: 75.
52. Medicine review clinics for renal patients. *Pharm J*. 2000. 265: 23.
53. Capper E. and Jones S.W. Are patients satisfied with a pharmacist-led rheumatology drug monitoring clinic? *Pharm J*. 1999. 263(7063): R66.
54. Department of Health. Older People. London: Department of Health; 2001.
55. The National Service Framework for Renal Services. Part one: Dialysis and Transplantation. London: Department of Health; 2004.
56. Shah R. Medicines management. *Pharm J*. 1997. 259: 26.
57. Smith H. Pharmacist involvement in a surgical preadmission clinic improves the quality of patient care. *Pharm J*. 1997. 259: 902.
58. Jay C. The role of the pre-admissions pharmacist. *Hosp Pharm*. 1998. 5: 105-6.
59. Spiller C. and Ashcroft D. Controlled trial of a pharmacist-led surgical pre-admission clinic in secondary care. *Int J Pharm Pract*. 2004. 12: R31.
60. The new GMS contract explained. General Practitioners Committee; 2004. [www.bma.org.uk/](http://www.bma.org.uk/) (Accessed 1.10.2004)
61. National Service Framework for Coronary Heart Disease. London: Department of Health; 2000.
62. National Service Framework for Diabetes: standards. London: Department of Health; 2001.

63. British Guideline on the Management of Asthma. British Thoracic Society and Scottish Intercollegiate Guidelines Network; 2004.
64. Management of chronic obstructive pulmonary disease in adults in primary and secondary care. National Institute of Clinical Excellence (NICE); 2004.
65. Williams B. et al. British Hypertension Society Guidelines for hypertension management 2004 ( BHS-IV): summary. *BMJ*. 2004. 328: 634-40.
66. A National Service Framework for Mental health: modern standards and service models. London: Department of Health; 1999.
67. Feetam C. and Newton G. Pharmacist prescribing in mental health. *Hosp Pharm*. 2004. 11: 76-77.
68. Hay A. Bradley E. and Nolan P., Supplementary nurse prescribing. *Nurs Stand*. 2004. 18(41): 33-39.
69. Antoniou S. et al. General level competency framework improves the clinical practice of hospital pharmacists: final results of the south of England trial. *Int J Pharm Pract*. 2004. 12: R22-23.
70. A sweet pill for pharmacists. London: Department of Health. 2004. Press release
71. Bellingham C. What the new contract has in store. *Pharm J*. 2004. 273(7317): 385.
72. Walshe K. et al. Primary Care Trusts. *BMJ*. 2004. 329: 871-872.
73. Sexton J. et al. Ensuring seamless care at hospital discharge: a national survey. *J Clin Pharm Ther*. 2000. 25: 385-393.
74. Wilkie P. et al. Prescribing at the hospital-general practice interface I: Hospital outpatient dispensing policies in England. *BMJ*. 1992. 304: 29-31.

## **Abstract**

*Objective (of the study)* To provide data on the views of chief pharmacists (CPs) and primary care trust pharmacists (PCTPs) on the risks and concerns surrounding supplementary prescribing.

*Setting* Secondary and primary care within England.

*Method* Postal questionnaire surveys of chief pharmacists and primary care trust pharmacists.

*Main Outcome Measure* Significance of the association between the extracted factors.

*Results* The response rate was 68% for both the primary care (183/271) and secondary care surveys (97/143).

The survey tool was subjected to factor analysis and reliability testing. For both sectors, the three factors that were extracted described concerns over the training model for supplementary prescribing, concerns about the professional competency/responsibility of the supplementary prescribers once trained, and positivity about the implementation of supplementary prescribing.

For both sectors, as trusts have more experience of supplementary prescribing by nurses, the respondents had less concerns about the supplementary prescribing training model.

For secondary care, as the total number of pharmacists employed within the Trust increases, the respondents had less concerns over the limitations of the supplementary prescribing training model.

*Conclusion* Although both sectors have concerns over the training model for supplementary prescribing and also professional competence and responsibility once trainees qualify, there is overall, a positive attitude towards supplementary prescribing and there is a belief that pharmacists wish to take this role on.

*Keywords* prescription; pharmacist; factorial analysis; questionnaire; nurse; risk

## **Risks and concerns about supplementary prescribing: Survey of primary and secondary care pharmacists.**

### **Introduction**

Supplementary prescribing is in its infancy in the UK and there are currently 635 registered supplementary prescribing pharmacists (August 2005) out of a total of 46,490 (2005) pharmacists on the register (1.4%). A more detailed discussion on the scope of supplementary prescribing has been presented previously.[1]

It has also recently been announced by the Department of Health that pharmacist prescribing powers have been extended after a consultation upon independent prescribing by pharmacists. During 2006, pharmacists who have qualified as independent prescribers will be able to prescribe any licensed medicines for any medical condition (with the exception of controlled drugs). (Also extended formulary nurse prescribers will be able to do this as from Spring 2006)[2]

Therefore the developing prescribing role by pharmacists is a hot topic for debate in the UK at the moment.[3]

Development of pharmacist prescribing in the UK has drawn upon the experience gained in the United States with pharmacist prescribing. Pharmacist prescribing was first introduced in California in the late 1970's, and since then has been extended to at least 16 states. Only one state (Florida) has introduced independent prescribing, where pharmacists are prescribing from a limited list of drugs.[4] A collaborative drug therapy management model is used in the United States for pharmacist prescribing, whereby the pharmacist has a collaborative arrangement with a physician to dependently prescribe certain medications as agreed in a management plan. Supplementary prescribing in the UK is a similar model, but unlike pharmacist prescribing in the United States where a generic management plan is produced for a certain condition, instead a tailored clinical management plan is produced for each patient that the pharmacist is going to prescribe for.

In the rest of Europe, New Zealand and Australia, pharmacists do not have the right to prescribe. Although in many European countries, pharmacists are active in preventing and correcting drug-related problems (such as Belgium, France, Germany, The Netherlands, Norway, Sweden), pharmaceutical care is in its infancy in the majority of Europe. It has been suggested that European pharmacists have a lack of authority to take an active part in decision-making for drug prescribing, and lack support from some physicians to be part of the healthcare team.[5] It is now recognised that there needs to be substantial changes made to most university's curriculum in Europe in order to arm pharmacists with the suitable knowledge and skills to implement pharmaceutical care efficiently.[5]

Although Europe is not at the stage where pharmacist prescribing can be implemented, lessons can be learnt from pharmacist prescribing experience in the UK, which can support further development of the clinical role for pharmacist colleagues in Europe.

We have previously reported that the majority of chief pharmacists within secondary care in England intended to implement supplementary prescribing by pharmacists by the end of 2005 (57 per cent, n=55)[1] This was also similar for primary care trust pharmacists (56 per cent, n=100). Chief pharmacists (CP) in secondary care, and primary care trust pharmacists (PCTP) in primary care will need to decide how extensively they intend to implement supplementary prescribing by pharmacists within their trust and will oversee its implementation. They will also have to develop

a strategic plan for utilising this development in the optimum manner for patients dependent upon available staffing resource.

Pharmacists are employed by PCTs to control drug prescribing budgets. Some primary care pharmacists are entitled “pharmaceutical advisors” whose role also includes policy development. Most work with individual GPs to assist with drug audits and medication review. These pharmacists will have an important role in overseeing the development of supplementary prescribing within primary care trusts. Although implementation of supplementary prescribing by nurses will more than often be overseen by a different person within the trust such a senior nurse, that person will need to liaise with the CP or PCTP as these people have the expertise to advise upon issues such as medicines management and clinical governance concerning medicines and prescribing.

Liaison between these health professionals will also ensure that the patients are receiving the supplementary prescribing service from the most appropriate health care professional.

Therefore CPs and PCTPs will have an interest in the development of nurse prescribing within their trust (and vice-versa) and it is clear that development of prescribing by non-medical health care professionals within a trust will benefit from input from both professions.

The implementation of supplementary prescribing will be influenced by many external factors such as attaining funding of the service, funding for the training itself, funding for backfill whilst the pharmacist is training and ability to recruit a designated medical practitioner (DMP) to supervise part of the training. It may also be influenced by the perceptions that the people who may be in overall charge of implementation have with respect to supplementary prescribing.

During the consultation process for supplementary prescribing[6], many issues and risks with the proposed supplementary prescribing model were raised with the Department of Health[7]. Although some of these envisaged problems were dealt with as part of the consultation process, some negative perceptions and issues that were raised may have had an impact on health care professional’s perceptions of supplementary prescribing.

Although SP is currently the only legal form of pharmacist prescribing in the UK, several reports have identified other pharmacist prescribing roles (NON-supplementary prescribing), such as in pre-admission clinics (to obtain patient medication histories, write their in-patient drug chart and discharge prescription)[8] [9, 10], out-patient clinics[11] and discharge management[12-16] which may be taking place without using the SP model. Previous experience of these types of prescribing within a trust may also influence CPs and PCTP’s opinions upon how successful SP will be.

The work reported here was part of a larger study of supplementary prescribing, part of which has previously been reported [1]

Only the results of section C of the questionnaire survey will be presented in this paper. In this section of the questionnaire, the respondent’s attitude to a number of statements about supplementary prescribing was measured on a five point likert scale.

### **Aim of the Study**

The objectives of this part of the study were to investigate the perceptions of chief pharmacists and primary care trust pharmacists upon the risks and concerns surrounding supplementary prescribing, using a questionnaire survey as the research tool.

## **Method**

### **Questionnaire development**

Construction of the questionnaire was aided by literature review. A list of pharmacists holding important positions in England (policy-making/academic) were also identified, and their suggestions upon key questions that need answering with respect to supplementary prescribing were sought.

Semi-structured interviews were then held individually with a clinical governance lead, a nurse educator on a supplementary prescribing course, a chief executive of a hospital and a clinical governance co-ordinator (n=4) in order to develop a more detailed perspective on the risks and concerns surrounding the development of supplementary prescribing.

All of this data was then used to suggest topics for discussion at a focus group. A more detailed description of the development of the questionnaire has been described previously.[1]

One questionnaire was designed for chief pharmacists of secondary care acute hospital trusts, and a very similar questionnaire, with minor differences in orientation, was designed for primary care trust pharmacists. The questionnaire was divided into three sections. Section A inquired about general demographic data about themselves and their Trust. Section B inquired about the implementation of supplementary prescribing within their trust and Section C measured the respondent's attitude to a number of statements about supplementary prescribing. A Likert scale was used in section C to score the level of agreement to each item on a five point scale. According to convention, the high numbers indicated agreement and the scales were subsequently reversed for negative questions. Confidentiality was maintained by number-coding the questionnaires. A medical statistician advised on data analysis. Ethical permission for the study was obtained from the multi-centre research and ethics committee (MREC).

### **Validation and piloting**

In order to assess face validity of the secondary care questionnaire, one CP was observed whilst completing the questionnaire and discussed any ambiguities that arose with the researcher, and another CP completed the questionnaire and posted it back with written comments about any ambiguities. Minor adjustments were then made to the question structure to clarify these ambiguities. Although this process does not constitute full validation, face validity was further assessed in responses to the pilot questionnaire for both primary and secondary care.

In order to validate the primary care questionnaire, one PCTP completed the questionnaire and provided feedback via telephone and the other PCTP completed the questionnaire and provided written feedback.

Reliability of the survey tool cannot easily be tested (test-re-test reliability) as it would produce survey fatigue if re-tested in the same, limited, population.

For section C of the questionnaire, construct validity was used to assess the validity of the scale.

During February & March 2004, the secondary care questionnaire was piloted in 17 randomly selected (via a random number generator) hospitals from the sample (n=168).

At the same time, the primary care questionnaire was piloted in 30 randomly selected (via a random number generator) pharmacists from the sample (n=303). Several amendments were made to the questionnaire after piloting. Some questions were removed in order to reduce the length of the questionnaire and some questions had extra options added or removed from them. Therefore, data collected from the pilot questionnaires were not included in the final analysis.

### **Main Survey**

Both questionnaires were distributed in May 2004. The secondary care questionnaire was sent to named CPs within every NHS trust in England providing acute hospital services. Details of the handling of the questionnaire and follow-up have been described previously.[1]

Following piloting, a total of 151 hospital pharmacy departments were included in the main study. Eight of these hospitals were removed from the study after it was established that they had merged with another trust or were not an acute trust, leaving 143 hospitals for the study.

For primary care, after piloting, 273 primary care trusts were included in the main study. Two of these trusts were removed from the study after it was established that they were not a primary care trust or did not have a pharmacist employed as a pharmaceutical advisor. This left 271 primary care trusts eligible for the study.

Data obtained from returned questionnaires were coded and analysed using the Statistical Package for the Social Sciences (SPSS) version 11.

The data was also analysed by region/strategic health authority that the hospital or primary care trust (PCT) was from in order to assess whether there were any poor responses from particular regions.

### **Factor analysis**

Factor analysis was used to explore the relationships thought to exist between the items in section C of the questionnaire and to assess the degree to which items were measuring the same concept.

Principal components analysis (PCA) was used as the method of extracting the factors from the item population. The extracted factors were rotated obliquely using the direct oblimin method, interpreted and tested for internal reliability[17].

The significance of the association between the factors themselves and between the factors and responses to certain questions in sections A & B of the



questionnaire was assessed using the non-parametric tests chi-squared, Kruskal-Wallis and bivariate correlations (Spearman's  $\rho$ ), where appropriate.

## **Results**

### **General demographics**

Of the 143 hospitals, responses were received from 97 (68 per cent response rate) and for the 271 primary care trusts, responses were received from 183 (68 per cent response rate).

No particular patterns emerged when assessment of response rate from regions was undertaken.

### **Validation processes**

The frequencies of responses to the survey items in section C were explored during the process of construct validity (see Table 1-Questionnaire section C statements here). Construct validity was assessed by considering whether the responses to individual statements are consistent with other similar statements in the questionnaire.

#### **Secondary care**

The percentage of respondents whom stated that they did intend to implement supplementary prescribing by pharmacists within their trust by the end of 2005, and also agreed/strongly agreed with the statement “Development of supplementary prescribing by pharmacists will be a priority within the trust” was n=21 (38.1 per cent).

The percentage of respondents whom stated that they did intend to implement supplementary prescribing by nurses within their trust by the end of 2005, and also agreed/strongly agreed with the statement “Development of supplementary prescribing by nurses will be a priority within the trust” was n=28 (46.6 per cent).

#### **Primary care**

The percentage of respondents whom stated that they did intend to implement supplementary prescribing by pharmacists within their trust by the end of 2005, and also agreed (no-one strongly agreed) with the statement “Development of supplementary prescribing by pharmacists will be a priority within the trust” was n=39 (39.0 per cent).

The percentage of respondents whom stated that they did intend to implement supplementary prescribing by nurses within their trust by the end of 2005, and also agreed/strongly agreed with the statement “Development of supplementary prescribing by nurses will be a priority within the trust” was n=85 (62.0 per cent).

As a result of this process, no statements were removed from the survey at this stage.

### **Factor analysis**

Bartlett’s test of sphericity was significant ( $p < 0.001$ ) for both the primary & secondary care questionnaire. Also the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was adequate for both questionnaires. This verifies that the majority of items within the survey were sufficiently related to each other to proceed with factor extraction. More than half the items had a correlation coefficient of greater than 0.3, for both questionnaires, suggesting a strong correlation between the items. Six factors were extracted using PCA with an eigenvalue greater than 1 for the secondary care questionnaire, and on review of the scree plot, either three or five factors could be retained. However, after examining both models and advice from a

medical statistician, a three factor model was thought to be the most appropriate explanation of the data. This explained 40.5 per cent of the total variance.

For the primary care questionnaire, seven factors were extracted using PCA with an eigenvalue greater than 1. On review of the scree plot and discussion with a medical statistician, three factors were retained, which explained 37.0 per cent of the total variance. The extracted factors were rotated using oblique rotational methods.

For the secondary care questionnaire, item thirty-one did not load at all on the factors and therefore this item was dropped at this stage. Items 30 and 35 (See Table 1-Questionnaire section C statements) do not load significantly on any factor (significance= factor loading>0.4), and therefore these two items would be further assessed on the internal consistency of the extracted factors.

For the primary care questionnaire, items 30 and 33 (See Table (1-Questionnaire section C statements) did not load at all on the factors and therefore these questions were dropped at this stage. Item 20 did not load significantly on any factor and therefore this item would be further assessed on the internal consistency of the extracted factors.

### **Testing the internal consistency of the extracted factors**

The internal consistency of items within a factor was ascertained. The reliability coefficient (Cronbach's coefficient alpha) was calculated to indicate the strength of the relationship of each item within the factor. The consistency of the factor constructs are presented in (See Table 2-Reliability coefficients of the extracted subscales).

#### Secondary care

Assessment of the individual reliability coefficient for each item in the extracted factors suggested that items 22, 32 and 35 needed to be removed from factor one, items 30 and 32 needed to be removed from factor two and item 25 from factor 3 as they adversely affected the internal consistency of the extracted factor.

#### Primary care

Assessment of the individual reliability coefficient for each item in the extracted factors suggested that items 23 and 31 needed to be removed from factor one, item 21 needed to be removed from factor two and item 20 from factor 3 as they adversely affected the internal consistency of the extracted factor.

### **Testing the overall reliability of the scale**

Item-total correlations were assessed, which compares the scores on individual statements with the total score of the scale. Statements were considered for rejection if their item-total correlation was below 0.2.

Also the overall correlation between items within the scale was measured using the Cronbach's alpha score. A reliability coefficient of 0.7 or above is recommended which would imply that seventy per cent of the measured variance is reliable and thirty per cent is owing to random error.

#### Secondary care

The reliability scores as outlined above therefore suggest removing items 30, 31 and 35 from the overall scale. As item 32 was removed from two of the three factors upon internal consistency measurement, the overall Cronbach's alpha coefficient was also

calculated for the scale minus this item as well. This produced the best overall Cronbach alpha for the scale =0.75, (minus items 30,31,32 and 35).

#### Primary care

The reliability scores as outlined above therefore suggest removing items 20, 30 and 33 from the overall scale. However, the best overall Cronbach alpha score for the scale is with items 23,30,31 and 33 removed from the scale= 0.602. Therefore this overall reliability coefficient score coupled with the poor internal consistency of the extracted factors suggests that this scale is not reliably measuring the attitudes on the scale.

#### **Interpreting the factors**

See Table 3- Interpretation of the emergent factor constructs (Secondary Care)) and Table 4- Interpretation of the emergent factor constructs (Primary care)). -Display the interpretation of the emergent constructs. The factor analysis process had grouped various statements from the questionnaire that were related to each other into each factor. The items within each of these emergent factors were then reviewed and the concepts underlying them were described and interpreted.

#### **Exploring the factor scores**

The distributions of the scores for the extracted factors are summarised in Table 5 - Distribution of scores (Secondary care)) and Table 6- Distribution of scores (Primary care). Spearman's rho was used to explore the relationships between the total scores for the extracted factors. (See Table 7- Correlations between the factors). Summarises the relationships between the factors.

#### Secondary care

There was a strong association between factor one and two. Positive attitude towards limitations of the supplementary prescribing training model may be related to a positive attitude that trained supplementary prescribers will not encounter issues that threaten their professional competence or responsibility.

#### Primary care

There was a strong association between factor one and three. The positive attitude that trained supplementary prescribers will not encounter issues that threaten their professional competence or responsibility (Also that issues such as IT provision will not be an obstacle and that independent prescribing will not be more useful.) may be related to a positive attitude towards limitations to the supplementary prescribing training model. (Also that they did not think that multiple prescribers would increase the prevalence of iatrogenic disease.)

Therefore the same strong association was found amongst secondary and primary care.

#### **Exploring relationships between the factors and the respondents**

Table 8- Correlations between the factor scores and respondents presents the relationships between factor scores and relevant questionnaire responses.

#### Secondary care

There was a weak to moderate association between factor one and the total number of pharmacists employed in the trust. This suggests that as the total number of employed pharmacists increases the respondents had less concerns over the limitations of the supplementary prescribing training model.

There was also a weak to moderate association between factor one and the total number of current pharmacist prescribing activities (NON-supplementary prescribing). This suggests that as the trust has more of these prescribing activities being undertaken, there are less concerns over the limitations of the supplementary prescribing training model.

There was also a slightly stronger association between factor one and the total number of current nurse supplementary prescribing activities. Suggesting that as trusts have more experience of supplementary prescribing by nurses, the respondents have less concerns over the supplementary prescribing training model.

A relationship was found between factor one and the intention to implement pharmacist supplementary prescribing by the end of 2005. Respondents were more likely to state that they were intending to implement supplementary prescribing by pharmacists if they did not have concerns over the supplementary prescribing training model.

A relationship was also found between factor three and the intention to implement pharmacist supplementary prescribing by the end of 2005. Respondents were more likely to state that they were intending to implement supplementary prescribing by pharmacists if they thought that implementation of supplementary prescribing was going to be a priority within their trust and that pharmacists wanted to take on this role.

#### Primary care

There was a weak to moderate association between factor two and the total number of pharmacists employed in the trust. This suggests that as the total number of employed pharmacists increases the respondents thought that implementation of supplementary prescribing would be a priority within their trust, that pharmacists did want to take on this role and that reassessment and maintaining competency would not be an issue once qualified.

A strong association was found between factor three and the total number of current pharmacist prescribing activities (NON-supplementary prescribing). As the number of current pharmacist prescribing activities (NON-supplementary prescribing) increases, the respondents had less concerns over the limitations of the supplementary prescribing training model and professional competency and responsibility issues.

A relationship was found between factor two and the intention to implement pharmacist supplementary prescribing by the end of 2005. Respondents were more likely to state that they were intending to implement supplementary prescribing by pharmacists if they thought that implementation of supplementary prescribing was going to be a priority within their trust, and that pharmacists did want to take this role on. Also that reassessment of the trained supplementary prescriber and maintenance of competency would not be an issue.

A relationship was found between factor one and the intention to implement or train more nurses as supplementary prescribers within your trust by the end of 2005. Respondents were more likely to state that they were intending to implement supplementary prescribing by nurses if they thought that supplementary prescribers would not encounter issues that threaten their professional competency or

responsibility once qualified. They would also not consider that IT provision would be a problem or that independent prescribing would be more useful than supplementary prescribing.

A relationship was also found between factor two and whether pharmacists currently undertake “prescribing-type activities” (NON-supplementary prescribing) in any format within the trust. Respondents who answered yes to this question were more likely to think that implementation of supplementary prescribing would be a priority within the trust and that pharmacists did want to take this role on. Also that reassessment of the trained supplementary prescriber and maintenance of competency would not be an issue.

## **Discussion**

### **Comments upon individual items in the scale**

For question 19 (secondary care)/ 20 (primary care) (Table 1), the majority of primary and secondary care disagreed with this statement. Open comments were made that there is a risk for ANY prescriber that they will not appreciate the signs and symptoms being declared to them by the patient. Also, clinical governance should help to prevent this sort of problem occurring, thorough maintenance of competency from on-going continuing professional development and audit.

For question 20 (secondary care)/ 21 (primary care), several open comments were made. As long as good communication between prescribers was maintained then this should reduce the risk of iatrogenic disease. Good communication should be improved when level 3 electronic prescribing is implemented[18]. Comments were also made that this may be more applicable to nurse supplementary prescribers, especially those who prescribe in a very narrow, specialist area, who may not be aware of the impact that their drug initiation may have on concurrent conditions that the patient may have. For pharmacists, this may not be such an issue due to their broad knowledge of pharmacotherapeutics.

For question 25 (for both primary and secondary care), there were some comments made that they would agree that the lack of assessment of applied therapeutics in the prescribing area **for nurses** (not pharmacists) meant that the supplementary prescribing model was not robust. Certainly, the descriptive research regarding the pharmacological knowledge base of community nurses has consistently suggested that they may have knowledge deficits.[19-21] It will therefore be very important, in terms of risk management, to ensure that the principles of clinical governance are adhered to. Trusts need to ensure that they have an accountable and safe system in place, with formalised support for their non-medical prescribers, to ensure that patient safety is maintained. Undoubtedly, pharmacists will have a major part in the development of such a system.

However, the people answering this question and making these comments were pharmacists, so there could have also been some professional bias in their responses and comments.

Initial evaluation of the supplementary prescribing training for pharmacists suggests that the trainees would prefer there to be more training in physical examination and consultation skills within the courses investigated, and less basic pharmacology and pharmacokinetics[22]. Although the participants in this study tended to be experienced senior clinical pharmacists, who would be expected to have a good knowledge of basic pharmacology and pharmacokinetics, it does suggest that the requirements of nurses and pharmacists are very different in terms of training needs to become supplementary prescribers. It would therefore seem appropriate for profession specific courses to be utilised rather than generic supplementary prescribing courses.

Although pharmacists do have a standardisation of their original basic qualification, like nurses, there is no form of competency assessment once qualified to formerly differentiate the skills and expertise for example, of a senior clinical pharmacist from an aseptic production pharmacist. Antoniou et al have been working on the development of a competency framework for pharmacists within secondary and

primary care that will, if taken on by the profession, help to eradicate this issue[23]. If the standardised competency framework was tied in with the requirements for pharmacist supplementary prescribers, it will make the prescribing role a safer one for both the prescriber and the patient, and would tackle some of the concerns about lack of therapeutics assessment within the SP training. Similar requirements would of course, be necessary for nurse supplementary prescribers.

Although it was most common for primary and secondary care respondents to agree with the question 29, (for both primary and secondary care) that DMPs ought to undertake prescribing training themselves before assessing the prescribing competency of other health care professionals, there were comments made that this, however, would not happen, and that if it were a requirement, there would be even less medical practitioners willing to take on the DMP role. However, it has been suggested that in the future, ALL health-care professionals who are going to prescribe ought to pass a “prescribing exam” before they start prescribing. (Personal communications, Professor Judy Cantrill, BPC 2003) This would seem to be a fair approach, and would help to avoid the situation described at a hospital in the Wirral where pre-registration house officers are not allowed to prescribe for their first 6 weeks of practice without close supervision.[24] It would also avoid the perception of increased medication prescribing errors being made when newly-qualified doctors start prescribing as well as reduce opportunity for litigation.

Question 33/32 (secondary care/primary care) upon conflict within the pharmacist’s role with respect to being a prescriber and providing impartial advice to the public, was included after it had been suggested that this might be an issue for pharmacists especially in community pharmacies where it may not be possible to separate the prescribing and dispensing roles. However, the majority of respondents in primary and secondary care disagreed with this statement, and comments were made that the pharmacist’s professional and ethical duties would prevent this from happening.

Question 34/33 (secondary/primary care) suggested that undergraduate pharmacy students should qualify as supplementary prescribers upon graduation. The majority of secondary care respondents disagreed with this statement whereas primary care respondents mainly agreed with it. For those who disagreed with this statement, the comments suggest that it was thought to be appropriate to teach the principles and theory of supplementary prescribing at undergraduate level, but that there was a period of practice as a pharmacist required before becoming a qualified supplementary prescriber. However, it seems that the intentions of the Department of Health are to consolidate all of the supplementary prescribing training into the undergraduate course over the next few years, so that they will qualify upon graduation.[25] It is possible that primary care has less concerns about pharmacy graduates attaining the SP qualification upon graduation, as newly-qualified pharmacists in primary care have much more autonomy upon qualification, and often manage their own pharmacies.

Both primary and secondary care respondents agreed to question 35/34 (secondary/primary care) upon whether independent prescribing would be more useful than supplementary prescribing (SP). For secondary care respondents, this may reflect that SP is for chronic disease management and therefore the SP model does not suit secondary care very well because it manages acute illness.



Primary care respondents also agreed with the statement, which may reflect that for community pharmacists, independent prescribing may be more suitable and fit in with the majority of their premises not being located within GP surgeries. It would be especially suitable for their role in dealing with minor ailments and minor injuries. It was commented that for practice pharmacists, dealing with chronic conditions, that supplementary prescribing would be the prescribing model of choice.

### **Factor scores**

The distribution of scores for the 3 factors in primary and secondary care illustrate that both sectors have a tendency towards negativity about the supplementary prescribing training model. For secondary care, the concerns were around the paperwork & the clinical management plan that needs to be developed, how reassessment of on-going competency of the supplementary prescriber will take place, the suitability of the designated medical practitioner (DMP) to supervise the training and about undergraduate pharmacy students qualifying as supplementary prescribers upon graduation. For primary care, they had the same concerns over the paperwork involved and the suitability of the DMP to supervise, but also had concerns over the lack of clinical assessment in the SP training and the risk of increased prevalence of iatrogenic disease due to poor communication between prescribers.

Both sectors also have concerns about professional competence/responsibility once that pharmacists and nurses qualify as supplementary prescribers. For secondary care the concerns were around the risk of increased prevalence of iatrogenic disease due to poor communication between prescribers, the conflict that arises with the pharmacist's role of provision of impartial advice to patient's about medicines, the lack of clinical assessment in the SP training and supplementary prescribers not understanding the significance of symptoms that are declared to them during the consultation. For primary care, they had the same concerns about impartial advice provision, increased prevalence of iatrogenic disease but also had concerns about how reassessment of on-going competency of the supplementary prescriber will take place, the obstacles that poor information technology provision will bring, and that independent prescribing will be more useful.

However, both sectors are positive about the implementation of supplementary prescribing, and believe that pharmacists wish to take this role on. People who scored highly on factor 1 (secondary care) or factor 3 (primary care) either did not perceive SP to require much effort on their part, or, if they did, that the effort was worth it.

Therefore it would appear that although the profession has concerns about the training model and competency of supplementary prescribers once qualified, there is an understanding of the importance of this development, and that it needs to be taken forward within the constraints presented.

A small survey of community pharmacist's views upon supplementary prescribing would seem to support this finding of positivity about the implementation of supplementary prescribing. The survey found that a large majority wanted to become supplementary prescribers although only a few of them were currently in training for the role and that SP was being viewed very positively in terms of increased use of clinical knowledge, job satisfaction, responsibility and patient benefit[26].

### **Exploring relationships between the factors and the respondents**

The results suggest that as respondent's had more experience of non-medical prescribing within their trust (such as pharmacists writing discharge prescriptions)

they were less likely to have concerns over the SP training model. Therefore the concerns that respondents had about training may not turn out to be an issue in practice.

### **Reflection on findings in an international context**

On the basis of the UK experience, consideration should be given to the introduction of prescribing into the education programmes of pharmacists at an early stage if the supplementary prescribing model is to be developed in other countries. Where specialisation exists, for example the hospital pharmacy specialisation programmes in France and Spain, training in prescribing in secondary care could be included relatively easily. This issue should be discussed on a wider level, and perhaps European initiatives such as the Bologna Agreement could be used as a means of introducing prescribing practice into the undergraduate pharmacy curriculum.

### **Critique of method**

A critique of the method with regards to the full questionnaire has been reported previously[1], therefore this critique will focus upon section C alone.

It was noted that some respondents commented in the open comments section of the questionnaire that if the questions in section C were dealt separately with nurses and pharmacists, they would have answered the questions slightly differently.

There were also some comments made that in some of the questions in section C, the term “primary care” was used, which can be misunderstood as just meaning PCT pharmacists. –It is only recently that PCT pharmacists have been more often recognised as being their own specialist sector, separate from community pharmacy. Therefore the term “primary care” should no longer be used as a general term to collectively describe PCT pharmacists and community pharmacists, without further definition.

Respondents also commented that they would like to be able to make open comments to explain their answers to each item in section C. Some respondents did this anyway, where they felt they needed to qualify their answer. Although this is useful, it is also not usual for attitude scales to allow extra space for explanation of their response. Also, the longer a questionnaire survey is, the more negative impact it will have on the response rate. However, the comments were taken note of, and are referred to in the discussion of the results.

Construct validity did not work as well as expected. On reflection, the questions used for this validity test, were probably not as closely related as they should have been. Even if chief pharmacists or primary care trust pharmacists intended to implement supplementary prescribing, this does not necessarily mean that it would also be a priority within the trust. The two statements that were explored to assess construct validity only address one aspect of construct validity for this issue and do not prove anything with regard to the other statements that were included in the questionnaire. Extensive assessment of construct validity is not achievable when assessing such a narrow frame of questions. Therefore further questions should have been put into section C which correlated more closely with questions in section B, in order to test construct validity more effectively.

Representation of PCTs from a pharmaceutical adviser in the focus group and in the semi-structured interviews would have helped to improve the overall reliability of the scale for the primary care questionnaire.

The attitude scale for secondary care did produce a statistically valid Cronbach's alpha value for the overall scale, however, none of the Cronbach's alpha values for the extracted factors demonstrated a high level of internal consistency (as recognised in standard textbooks of what constitutes a reasonable level of consistency, reliability coefficient  $>0.7$ ) (Table 2). This would suggest that some caution is needed when interpreting the meaning of the factors and their associations.

Unfortunately the scale for section C for primary care did not produce an overall high level of internal consistency (Cronbach's alpha value), and neither did the individual extracted factors (Table 2). This suggests that the scale is not measuring what it was intended to for primary care. Since an almost identical scale for secondary care did have an overall high level of internal consistency (Cronbach's alpha value), (and therefore was measuring what was intended reliably) it suggests that the scale items needed further development to make them more suitable for primary care. The poor Cronbach's alpha values for the extracted factors were apparent in terms of developing an overall meaning for the factor (Panel 2). Some of the individual items did not "fit into" the group as well as other items.

An original assumption was made that PCT advisers were a homogenous group, and it is apparent that this is not the case, as they may have very different pharmacy backgrounds, have very different job roles and influence within their PCT. Also, the respondents were not all entitled pharmaceutical advisers, so may have had roles with very different focuses within the PCT. Different PCTs will also have different healthcare provision pressures upon them, which will be affected by whether they look after a rural or urban population. Also, if there is a large proportion of dispensing doctors within a PCT, this may have a negative effect upon the development of pharmacist supplementary prescribing due to there being a previous history of disagreement between the two professions upon the need for separation of prescribing and dispensing.

Although the scale does not have a high level of internal consistency in terms of the Cronbach's alpha value achieved, the results can be used to provide some insight into the views of primary care trust pharmacists upon the risks and issues surrounding supplementary prescribing in primary care, and to also highlight differences in those views between primary and secondary care.

## **Conclusion**

It would appear that although the Department of Health may feel that the training model and patient safeguards that have been put into place are sufficient, there are still concerns within both primary and secondary care about the supplementary prescribing model (such as the lack of clinical assessment during training) and also professional competence and responsibility once trainees qualify. It is apparent that in order for supplementary prescribing to be a safe system for patients, pharmacists will have a central role in the development process in terms of risk management and the safe use of medicines. The Department of Health may need to provide more support for this role, showcase examples of good practice, and support research into the role in order to provide an evidence-base that SP is providing patients with at least an equivalent service to doctors, and is also increasing access to healthcare for patients, without compromising safety. Only then will SP be more extensively implemented. Although CPs and PCTPs have these concerns, overall there is a positive attitude towards supplementary prescribing and there is a belief that pharmacists wish to take this role on.

Further work needs to be undertaken to further develop a survey tool to evaluate views of primary care trust pharmacists upon the risks and issues of supplementary prescribing more effectively.

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## **Possible conflict of interests**

Nothing to declare

## References

1. Hobson RJ and Sewell GJ, *Supplementary prescribing by pharmacists in England*. Am J Health-Syst Pharm, 2006. **63**: 244-53.
2. *Nurse and pharmacist prescribing powers extended*. DoH: London 2005. (WWW)[http://www.dh.gov.uk/PublicationsAndStatistics/PressReleases/PressReleasesNotices/fs/en?CONTENT\\_ID=4122999&chk=Mjc1MS](http://www.dh.gov.uk/PublicationsAndStatistics/PressReleases/PressReleasesNotices/fs/en?CONTENT_ID=4122999&chk=Mjc1MS) (November 11<sup>th</sup> 2005)
3. Avery AJ and Pringle M. *Extended prescribing by UK nurses and pharmacists*. BMJ 2005. **331**: 1154-1155.
4. Farrell J. North-Lewis P and Cross M. *Pharmacist prescribing in the United States*. Pharm J 1997. **259**: 187-190.
5. Foppe van Mil J. Schulz M and Tromp TF. *Pharmaceutical care, European developments in concepts, implementation, teaching and research: a review*. Pharm World Sci 2004. **26**: 303-311.
6. *Proposals for supplementary prescribing by nurses and pharmacists and proposed amendments to the prescription only medicines (human use) order 1997*. MCA: London 2002:1-19.
7. *Outcome of the consultation exercise on proposals for supplementary prescribing by nurses and pharmacists*. DoH: London 2002.
8. Lord S. *The interface- Steps towards seamless care*. Hosp Pharm; 1999; **6**: 83-84
9. Hebron B and Jay C. *Pharmaceutical care for patients undergoing elective ENT surgery*. Pharm J 1998. **260**: 65-66
10. Hick H, Deady PE, Wright D, Silcock J. *The impact of the pharmacist on an elective general surgery pre-admission clinic*. Pharm World Sci 2001. **23**(2): 65-69.
11. Booth CD. *Pharmacist-managed anticoagulant clinics: A review*. Pharm J 1998. **261**: 623-625.
12. Cattell R, Conroy C and Sheikh A. *Pharmacist intergration into the discharge process: a qualitative and quantitative impact assessment*. Int J Pharm Pract 2001. **9**: 59-64.
13. Taheny K, Tyrell A, Cairns C and Bunn R. *Influence of patient focused care on managing medicines for discharge*. Pharm J 1999. **262**: 368-371.
14. Leech D. *Patient directed pharmacy services- do they benefit their patients?* Hosp Pharm 2000. **7**: 263-264.
15. Jacklin A, Patel K and Almossawi O. *A discharge pharmacist service improves the timeliness, quality and cost of discharge*. Pharm in Pract 2001. **11**(April 2001): 100-102.
16. Ketley D, Qualie MJ and Godfrey BD. *The near patient clinical pharmacist 1. From design to pilot*. Pharm J 1998. **261**: 247-249.
17. Tabachnick, B.G. and Fidell LS, *Using multivariate statistics*. 2000. (4th Ed) New York: Harper and Row. 0321189000
18. *NHS Executive information policy unit. Information for health: an information strategy for the modern NHS 1998-2005, a national strategy for local implementation*. DOH:London 1998.
19. While A and Biggs KS. *Benefits and challenges of nurse prescribing*. J of Adv Nurs 2004. **45**(6): 559-567.
20. Latter S, Rycroft-Malone J, Yerrell P and Shaw D. *Evaluating educational preparation for a health education role in practice: the case of medication education*. J of Adv Nurs 2000. **32**(5): 1282-1290.

21. Latter S and Courtenay M. *Effectiveness of nurse prescribing: a review of the literature*. J of Clin Nurs 2004. **13**: 26-32.
22. Dawoud D, Goodye LI, Lovejoy A and Greene RJ. *Perceptions and perceived competencies of pharmacists on supplementary prescribing training courses in London and the South East*. Int J Pharm Pract 2004. **12**: R40.
23. Antoniou S, Webb DG, Davies JG, Bates I, McRobbie D, Wright J, et al. *General level competency framework improves the clinical practice of hospital pharmacists: final results of the south of England trial*. Int J Pharm Pract 2004. **12**: R22-23.
24. Farrar K. *Time to review prescribing in hospitals by preregistration house officers*. Pharm J 2002. **268**: 136.
25. *No obstacle to pharmacists prescribing*. Pharm J 2002. **269**: 450.
26. While A, Mudaly M and Nathan A. *Views of community pharmacists regarding supplementary prescribing*. Int J Pharm Pract 2004. **12**: R43.

Table 1: Questionnaire Section C statements

Question No.		Statement	Strongly Agree No. (%)		Agree No. (%)		Uncertain No. (%)		Disagree No. (%)		Strongly Disagree No. (%)	
1°	2°		1°	2°	1°	2°	1°	2°	1°	2°	1°	2°
20	19	There is a risk that SP's may not appreciate the significance of signs & symptoms that the patient declares to them during the consultation	1 (0.5)	2 (2.1)	51 (27.9)	31 (32.3)	28 (15.3)	19 (19.8)	<b>88</b> <b>(48.1)</b>	<b>37</b> <b>(38.5)</b>	15 (8.2)	7 (7.3)
21	20	Multiple prescribers, arising from the introduction of SP, will increase the prevalence of iatrogenic disease	0	2 (2.1)	18 (9.9)	11 (11.3)	51 (28)	<b>35</b> <b>(36.1)</b>	<b>82</b> <b>(45.1)</b>	33 (34)	31 (17)	16 (16.5)
22	21	Amongst other developments being undertaken within the NHS, development of SP by <b>PHARMACISTS</b> WILL be a priority within our trust	1 (0.5)	3 (3.1)	48 (26.4)	23 (23.7)	48 (26.4)	24 (24.7)	<b>64</b> <b>(35.2)</b>	<b>37</b> <b>(38.5)</b>	21 (11.5)	7 (7.3)
23	22	Amongst other developments being undertaken within the NHS, development of SP by <b>NURSES</b> WILL be a priority within our trust	17 (9.4)	4 (4.1)	<b>86</b> <b>(47.5)</b>	<b>44</b> <b>(45.4)</b>	42 (23.2)	28 (28.9)	34 (18.8)	19 (19.6)	2 (1.1)	2 (2.1)
25	25	Lack of assessment of applied therapeutics in the prescribing area means that the training model for SP is not sufficiently robust	19 (10.6)	10 (10.6)	57 (31.7)	23 (24.5)	<b>68</b> <b>(37.8)</b>	<b>28</b> <b>(29.8)</b>	29 (16.1)	27 (28.7)	7 (3.9)	6 (6.4)

Question		Statement	Strongly		Agree		Uncertain		Disagree		Strongly	
No.			Agree		No. (%)		No. (%)		No. (%)		Disagree	
			No. (%)								No. (%)	
1°	2°		1°	2°	1°	2°	1°	2°	1°	2°	1°	2°
26	26	The paperwork & development of individual clinical management plans will be prohibitive to the development of SP.	5 (2.8)	9 (9.5)	55 (31.1)	31 (32.6)	43 (24.3)	17 (17.9)	<b>70</b> <b>(39.5)</b>	<b>34</b> <b>(35.8)</b>	4 (2.3)	4 (4.2)
27	27	The majority of pharmacists in 1° /2° care do not wish to take on the SP role.	7 (4)	4 (4.2)	47 (26.7)	24 (25)	<b>61</b> <b>(34.7)</b>	23 (24)	53 (30.1)	<b>40</b> <b>(41.7)</b>	8 (4.5)	5 (5.2)
28	28	Reassessing & maintaining competency of SP pharmacists will limit the uptake of SP.	1 (0.6)	1 (1.1)	56 (31.5)	19 (20)	40 (22.5)	26 (27.4)	<b>78</b> <b>(43.8)</b>	<b>46</b> <b>(48.4)</b>	3 (1.7)	3 (3.2)
29	29	The designated medical practitioner should undergo prescribing training themselves before assessing the prescribing competency of SP trainees	16 (9)	13 (13.8)	<b>77</b> <b>(43.3)</b>	<b>37</b> <b>(39.4)</b>	25 (14)	15 (16)	56 (31.5)	27 (28.7)	4 (2.2)	2 (2.1)
30	31	An employee SP should have their own indemnity insurance, as the trust's vicarious liability may not be sufficient	20 (11.3)	6 (6.3)	<b>72</b> <b>(40.7)</b>	16 (16.7)	50 (28.2)	15 (15.6)	29 (16.4)	<b>36</b> <b>(37.5)</b>	6 (3.4)	23 (24)
31	32	Non-SP pharmacists will regard themselves as "second-class citizens" compared to prescribing colleagues.	2 (1.1)	1 (1)	13 (7.3)	7 (7.3)	35 (19.1)	17 (17.7)	<b>104</b> <b>(58.4)</b>	<b>54</b> <b>(56.3)</b>	24 (13.5)	17 (17.7)



Question		Statement	Strongly		Agree		Uncertain		Disagree		Strongly	
No.			Agree		No. (%)		No. (%)		No. (%)		Disagree	
			No. (%)								No. (%)	
1°	2°		1°	2°	1°	2°	1°	2°	1°	2°	1°	2°
32	33	The SP role will cause conflict with the pharmacist's role of providing impartial advice to patients upon medicines	2 (1.1)	1 (1)	11 (6.2)	11 (11.5)	27 (15.3)	11 (11.5)	101 (57.1)	50 (52.1)	36 (20.3)	23 (24)
33	34	In the future, I believe that it will be appropriate for undergraduate pharmacy students to qualify as SP's when they graduate	25 (14)	6 (6.3)	63 (35.4)	21 (22.1)	7 (3.8)	11 (11.6)	46 (25.8)	33 (34.7)	37 (20.8)	24 (25.3)
34	35	In 1°/2° care, there will be more extensive uptake & use for pharmacists as INDEPENDENT prescribers rather than as supplementary prescribers.	47 (26.6)	25 (26)	76 (42.9)	37 (38.5)	40 (22.6)	20 (20.8)	13 (7.3)	10 (10.4)	1 (0.6)	4 (4.2)
24	-	Currently, poor IT links will limit the development of community pharmacist SPs.	98 (53.6)		72 (39.3)		4 (2.2)		7 (3.8)		2 (1.1)	
-	23	Insufficient pharmacist resource will be a major limitation to development of pharmacist SP within secondary care.		41 (42.3)		36 (37.1)		3 (3.1)		12 (12.4)		5 (5.2)
-	24	Lack of 24-hour opening of pharmacy departments will be a limitation to development of pharmacist SP.		10 (10.8)		23 (24.7)		8 (8.6)		39 (41.9)		13 (14)

Question No.	Statement	Strongly Agree No. (%)		Agree No. (%)		Uncertain No. (%)		Disagree No. (%)		Strongly Disagree No. (%)	
1°	2°	1°	2°	1°	2°	1°	2°	1°	2°	1°	2°
-	30	Pharmacists who currently transcribe discharge prescriptions should be trained as SP's to continue this role		10 (10.8)	20 (21.5)		10 (10.8)		40 (43)		13 (14)

N. B. 1°= Primary Care. 2°= Secondary Care.  
Missing Data: Primary Care n=58, Secondary Care n= 17

Table 2: Reliability coefficients of the extracted subscales

Factor construct	No. of items		Coefficient	
	Primary Care	Secondary Care	Primary Care	Secondary Care
One	5	5	0.519	0.597
Two	4	6	0.587	0.694
Three	4	3	0.555	0.622

Table 3: Interpretation of the emergent factor constructs (Secondary Care)

Factor one: Limitations of the SP training model	<p>High scoring respondents were being positive about SP, were willing to put more effort into the development of SP (if necessary) and they thought there would not be many limitations to the SP training model.</p> <p>Low scoring respondents were being negative about the SP training model, were less likely to put much effort into the development of SP and were agreeing that there were problems with it.</p>
Factor two: Professional competence/responsibility issues once trained	<p>High scoring respondents were being positive about SP and were suggesting that trained supplementary prescribers will not encounter issues that threaten their professional competence or responsibility.</p> <p>Low scoring respondents were being negative about SP and were suggesting that trained supplementary prescribers would encounter issues that threaten their professional competence or responsibility.</p>

Factor three: How commonly SP will be implemented	High scoring respondents had more will to introduce SP and were suggesting that implementation would be a priority within trusts and that pharmacists in secondary care did want to take on this role.  Low scoring respondents had less will to introduce SP and were suggesting that implementation of SP would NOT be a priority within their trust and that pharmacists did NOT want to take on this role.
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Table 4: Interpretation of the emergent factor constructs (Primary care)

Factor one: Professional competence/responsibility issues once trained plus limitations to uptake of SP	<p>High scoring respondents were being positive about SP suggesting that trained supplementary prescribers will not encounter issues that threaten their professional competence or responsibility. Also that issues such as IT provision will not be an obstacle and that IP will not be more useful.</p> <p>Low scoring respondents were being negative about SP and were suggesting that trained supplementary prescribers would encounter issues that threaten their professional competence or responsibility.</p> <p>They also thought that IT provision would affect implementation of SP and that IP would be of more use.</p>
Factor two: How commonly SP will be implemented plus limitations to uptake of SP	<p>High scoring respondents had more will to introduce SP and were suggesting that implementation would be a priority within trusts and that pharmacists in secondary care did want to take on this role. Also that reassessment &amp; maintaining competency once qualified was not an issue.</p> <p>Low scoring respondents had less will to introduce SP and were suggesting that implementation of SP would NOT be a priority within their trust and that pharmacists did NOT want to take on this role. Also that reassessment &amp; maintaining competency once qualified was an issue.</p>

Factor three: Limitations of the SP training model plus Professional competence/responsibility issues once trained	<p>High scoring respondents were being positive about SP, were willing to put more effort into the development of SP (if necessary) and that they thought there would not be many limitations to the SP training model.</p> <p>They also did not think that multiple prescribers would increase the prevalence of iatrogenic disease.</p> <p>Low scoring respondents were being negative about the SP training model, were less likely to put much effort into the development of SP and agreed that there were problems with the SP training model.</p> <p>They also thought that multiple prescribers would increase the prevalence of iatrogenic disease.</p>
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Table 5: Distribution of scores (Secondary care)

Factor one: Limitations of the SP training model	Normal distribution of scores	Mean scale score: -1.73
	The tendency towards lower	Std. deviation: 3.42
	scores indicates that the	Median scale score: -2.00
	respondents agreed that there	Minimum score: -8.00
	were limitations to the SP training model.	Maximum score: 10.00
Factor two: Professional competence/responsibility issues once trained	Normal distribution of scores	Mean scale score: 0.86
	The small tendency towards	Std. deviation: 4.09
	lower scores indicates that	Median scale score: 1.00
	respondents agreed that there	Minimum score: -7.00
	were professional competency/responsibility issues post qualification.	Maximum score: 11.00
Factor three: How commonly SP will be implemented	Skewed distribution of scores	Mean scale score: 0.22
	The higher proportion of high	Std. deviation: 2.23
	scores indicates that	Median scale score: 0.00
	respondents were positive	Minimum score: -6.00
	about the implementation of SP, that it would be a priority of trusts and that pharmacists wanted to take the role on.	Maximum score: 6.00

Table 6: Distribution of scores (Primary care)

Factor one: Professional competence/responsibility issues once trained plus limitations to uptake of SP	Skewed distribution of scores The higher proportion of lower scores indicates that respondents were being more negative about SP and were suggesting that trained supplementary prescribers would encounter issues that threaten their professional competence or responsibility and that IT provision would affect implementation of SP and that IP would be of more use.	Mean scale score: -0.58 Std. deviation: 2.54 Median scale score: -1.00 Minimum score: -7.00 Maximum score: 6.00
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Factor two:	How	Skewed distribution of scores	Mean scale score: 0.29
commonly SP will be	The higher proportion of high	Std. deviation: 2.55	
implemented plus	scores indicates that	Median scale score: 0.00	
limitations to uptake of	respondents were positive	Minimum score: -6.00	
SP	about the implementation of	Maximum score: 6.00	
	SP, that it would be a priority		
	of trusts and that pharmacists		
	wanted to take the role on.		
	Reassessment & competency		
	maintenance were not viewed		
	as being an issue once		
	qualified.		
Factor three: Limitations	Skewed distribution of scores	Mean scale score: 0.21	
of the SP training model	The higher proportion of lower	Std. deviation: 2.55	
plus Professional	scores indicates that	Median scale score: 0.00	
competence/responsibility	respondents were being more	Minimum score: -6.00	
issues once trained	negative about the SP training	Maximum score: 7.00	
	model and were agreeing that		
	there were problems with it.		
	They also thought that multiple		
	prescribers would increase the		
	prevalence of iatrogenic		
	disease.		

Table 7: Correlations between the factors

Spearman's Correlation coefficient rho (n=169-174 primary care) (n=88-92 secondary care)				
(P value)				
Percentage variance explained				
	Factor One		Factor Two	
	Primary Care	Secondary Care	Primary Care	Secondary Care
Factor two	0.309	0.511		
	(P=0.000)	(P=0.000)		
	9.5 per cent	26.1 per cent		
Factor three	0.415	No significant	0.173	No significant
	(P=0.000)	relationship	(P=0.024)	relationship
	17.2 per cent		3 per cent	

Table 8: Correlations between the factor scores and respondents

Spearman's Rho	Correlation coefficient rho					
	(P value)					
	Percentage variance explained					
	n					
	Factor One		Factor Two		Factor Three	
	Primary	Secondary	Primary	Secondary	Primary Care	Secondary
	Care	Care	Care	Care		Care
Total number of WTE pharmacists employed by trust	No significant results	0.303 (P=0.008) 9.2 per cent 76	0.267 (P=0.000) 7.1 per cent 170	No significant results	No significant results	No significant results
Total number of current pharmacist prescribing activities (NON-SP)	No significant results	0.300 (P=0.021) 9.0 per cent 59	No significant results	No significant results	0.441 (P=0.008) 19.4 per cent 35	No significant results
Total number of current nurse prescribing activities (SP)	No significant results	0.359 (P=0.011) 12.9 per cent 49	No significant results	No significant results	No significant results	No significant results

	Chi squared					
	(P value)					
	Df					
	Highest mean ranking (Yes answer)					
	n					
Kruskal Wallis	Factor One		Factor Two		Factor Three	
	Primary	Secondary	Primary	Secondary	Primary	Secondary
	Care	Care	Care	Care	Care	Care
Intention to implement pharmacist SP by end of 2005	No significant results	20.523 (P=0.000) 3	12.224 (P=0.007) 3	No significant results	No significant results	14.128 (P=0.003) 3
		57.75	96.95			55.92
		92	172			96
Intention to implement/train more nurse SP's by end of 2005?	9.659 (P=0.022) 2	No significant results	No significant results	No significant results	No significant results	No significant results
	126.88 (No answer) 174					
Do pharmacists undertake "prescribing-type activities" (NON-SP) in your trust?	No significant results	No significant results	8.913 (P=0.012) 2	No significant results	No significant results	No significant results
			106.64 173			

# A SURVEY OF NURSE SUPPLEMENTARY PRESCRIBING IMPLEMENTATION IN PRIMARY AND SECONDARY CARE IN ENGLAND.

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*Introduction* There are currently 4,151/672,897 (0.62%) qualified nurse supplementary prescribers (31<sup>st</sup> March 2005). Although supplementary prescribing (SP) is a topical subject within healthcare professions, there is little information available on how SP is being implemented within primary and secondary care, and in which clinical areas.

The aim of this survey was to describe how SP was being implemented within primary and secondary care in England. Only those results pertaining to nurse supplementary prescribing will be presented here.

*Method* A postal questionnaire survey of chief pharmacists within secondary care (n=143) and primary care trust pharmacists in primary care (n=271) in England was distributed in May 2004. A literature review, semi-structured interviews and a focus group were used to design the questionnaire. It contained open and closed questions.

The questionnaire was validated (n=4) by pharmacists in the target population, and piloted in approximately 10% of the target population (n=17 chief pharmacists and n=30 PCT pharmacists). Results from the pilot were not included in the main results of the survey. Responses were coded and analyzed using the statistical package for the social sciences (SPSS) version 11.

*Results* The response rate was 68% for both the primary care (183/271) and secondary care surveys (97/143). Fifty-eight per cent (n=56/97) of secondary care chief pharmacists stated that they had trained nurse supplementary prescribers working within their trust, compared to 75% (n=136/183) within primary care trusts.

The top clinical areas for nurse supplementary prescribing are very similar for primary and secondary care, with Asthma, Diabetes, COPD and Heart Failure all appearing in the top five clinical areas. These conditions are established areas for specialist nursing input. There was a wide range of people reported to be responsible for taking forward supplementary prescribing for nurses within primary care, but most commonly, it was the director of nursing (52% n=95/182 (1=missing data)) followed by the PCT non-medical prescribing group (38% n=70/182 (1=missing data)) and the pharmaceutical adviser (31% n=56/182 (1=missing data)).

## *Conclusion*

Nurse supplementary prescribing appears to be taking longer to establish within secondary care. The reasoning for this finding is likely to be multifactorial. Primary care has more experience of nurse prescribing and the model of SP is tailored for chronic disease management. Development of supplementary prescribing within primary care may be rather fragmented given the wide range of people charged with taking nurse supplementary prescribing forward. The lack of national strategy to guide which clinical areas supplementary prescribers should practice in, or where areas of expertise should be developed, may precipitate variability in patient accessibility to healthcare across different parts of the UK, which is relevant to pharmacist supplementary prescribers as well.

## **A qualitative evaluation of patient opinion on pharmacist and nurse independent prescribing (IP).**

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**Focal Points:** Community pharmacists in particular have many more barriers to deal with before the public will have confidence in their prescribing services when compared to nurses. Public promotion of pharmacist's skills and clinical governance assurances will be essential to gain public confidence in IP.

**Introduction:** Evaluation of supplementary prescribing (SP) by pharmacists to date has provided limited data regarding patient's opinions of pharmacist SP<sup>1</sup>. Reports of patient opinion of nurse prescribing suggest increased convenience, improved access to healthcare and better use of healthcare professionals' time. Concerns focus on nurses having insufficient experience to prescribe.<sup>2-4</sup> The purpose of this research was to investigate patient opinion on the development of pharmacists and nurses as independent prescribers. Opinions of patients who have and haven't used SP services will be invaluable to examine views on Independent Prescribing (IP). Of specific interest is their perception of the benefits, concerns and preference of which health professional they would consult. Identification of these factors will allow misconceptions and barriers to be tackled.

**Method:** Qualitative methodology, using depth interviews was used. Eighteen interviews (n=5 primary care (GP-led), n=5 secondary care (Consultant-led), n=5 primary care (Pharmacist SP-led) and n=3 secondary care (Pharmacist SP-led)) took place with patients in Bristol, Swindon and Brighton. Patients interviewed in primary care had hypertension and those in secondary care had gastro-intestinal (GI) cancers. They were randomly sampled from a list of patients under the care of one prescriber at each centre. Participants were aged between 42 to 81 years of age (n=11 male and n=7 female). Interviews took place within the NHS trusts between January and August 2006. Ethics approval was obtained for the patient interviews. A topic guide was developed using literature review. All interviews were tape recorded with consent and fully transcribed. After transcription, each interview was examined and analysis for emergent themes was undertaken using interpretative phenomenological analysis.

**Results:** Participants shared common views upon the benefits of IP and necessary controls regardless of the type of professional. They also had common concerns about IP, including doubting their ability to deal with more serious conditions and their diagnostic skills. Concerns were based upon issues of change and acceptance where some participants prefer the traditional doctor model, considering the IP service inferior. Nurse prescribing was more acceptable than pharmacist prescribing because nurses were considered to be trustworthy, caring and a devoted profession who are the central figure in an individual's healthcare, with whom relationships are established. It was noted by some participants that nurses already had a prescribing role. Generally, community pharmacists were perceived by some participants as being "non-NHS", not being a healthcare provider and as having a negative image. Participants doubted the privacy of community pharmacies, whether they had the necessary space to provide a professional IP service and had clinical governance concerns. However, participants did acknowledge the expert drug knowledge that

pharmacists have and their accessibility. Participants that had experienced pharmacist SP were positive about the experience and it enforced views that pharmacists would be capable as IPs. Patients felt empowered due to a more concordant approach compared with doctor consultations. They also viewed SP pharmacists as being specialists compared to community pharmacists. Participants that had not experienced SP tended to have more intrinsic barriers towards IP. Participants with hypertension were more vocal about their opinions than those with GI cancers. The participants with hypertension discussed how knowledgeable pharmacists are more frequently but were more negative about their value, status and their dispensing role.

**Discussion:** Community pharmacists have more barriers to overcome before the public will accept their prescribing services when compared to nurses. This is because the public do not currently visualise them as healthcare providers and do not understand the knowledge and skills that they have. Public promotion of pharmacist's skills and assurance of clinical governance will be essential to gain public confidence in IP.

#### **References:**

1. Smalley L. *Patient's experience of pharmacist-led supplementary prescribing in primary care*. Pharm J, 2006. **276**: 567-569.
2. Luker K et al. *Patient's views of nurse prescribing*. Nurs Times, 1997. **93**: 515-518.
3. Brooks N et al. *The patient's view: the benefits and limitations of nurse prescribing*. Br J Comm Nurs, 2001. **6**: 342-348.
4. Berry D, Courtenay M and Elisabetta B. *Attitudes towards, and information needs in relation to, supplementary nurse prescribing in the UK: an empirical study*. J Clin Nurs, 2006. **15**: 22-28.